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The Oregon Planning-Programming-Budgeting-Systems Institute, which was held August 19 through 30, 1968, was one of three such institutes financed by the U.S. Office of Education, Bureau of Vocational Education. It was designed to acquaint State level vocational education administrators with the potential and workings of planning, programming, budgeting systems (PPBS). The need for and potential of the PPBS approach to budgeting are outlined in this final report along with a discussion of areas for further research, development, and application. Briefs of all institute presentations and other activities are included along with an 84-entry bibliography on PPBS, the formal program of the institute, a list of participants, and an evaluation of the institute. Basic economic principles of PPBS are explained and applications of cost-benefit and cost-effectiveness analysis are detailed. A sample cost-benefit problem is appended. (Author/DE)

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FINAL REPORT

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THE OREGON PLANNING-PROGRAMMING-BUDGETING-SYSTEMS INSTITUTE

December, 1968

TEACHING RESEARCH
A Division of the Oregon State System
of Higher Education

Prepared by:
The Center for Research and Development
In State Education Leadership
TEACHING RESEARCH DIVISION
Oregon State System of Higher Education

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FINAL REPORT

Project No. 8-0398

THE OREGON PLANNING PROGRAMMING BUDGETING SYSTEMS INSTITUTE

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December 31, 1968

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U. S. Department of
Health, Education, and Welfare

Office of Education
Bureau of Research

The Oregon Planning Programming
Budgeting Systems Institute

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PART I: SUMMARY

The general purpose of the various activities included in the Oregon Planning, Programming, Budgeting Systems Project was to enhance the quality of planning, program development, financial arrangements, and evaulation efforts in the vocational education establishment at state and local levels.

Three general areas of activity were proposed and accomplished in the Project. The major activity was that of conducting a two-week Institute in Planning, Programming, Budgeting Systems (PPBS) for participants from state departments and state divisions of vocational education. The planning and recruitment of participants was accomplished during the months immediately prior to the Institute, which was held August 19 - 30, 1968. The major portion of this final report is directly appropriate to that Institute. Part III includes a detailed, descriptive report, which not only is a report of an institute, but includes major instructional, content material on Planning, Programming, Budgeting Systems. Much bibliographical material was collected and utilized during the Institute and is made available in the various appendices as well as in Part III.

A second major activity of the Project was conferring with appropriate representatives from state level, vocational education agencies, who had had varying degrees of experience with PPBS. Particular emphasis in these conferences was the focus on problems and needs with implications for programmatic content for the Oregon PPBS Institute.

An early and continuing liaison with The Center for Research and Development in Vocational-Technical Education, The Ohio State University, was established. The Ohio Center held a similar grant which financed the Oregon PPBS Institute and conducted their Institute in October, 1968. This liaison resulted in cooperative endeavors with respect to consultation on program content, materials, bibliographies, case studies, methodology, evaluation, and recruitment. Post-Institute cooperation continues with emphasis on refinement of PPBS curriculum materials and planning for appropriate followup.

A "third party" evaluation was conducted for the Oregon PPBS Institute and is included in this report as Part IV.

Four major recommendations arise from Teaching Research staff's experience with the Planning, Programming, Budgeting Systems Project:

1) A research effort is needed if the potential of the PPB systems is to be realized. It is recommended that effort be focused on cost benefit and cost effectiveness analysis. Of particular need, is the development of cost effectiveness models which can serve as a basis

for comparative cost studies in vocational education. The goal would be to establish criteria for funding future vocational education programs. Major attention is also needed in researching approaches and establishing models for determining the dollar value of program benefits. A successful effort is necessary if cost benefit ratios for vocational programs are to contribute meaningfully to decision making. Work should also begin on evaluating the effectiveness of PPBS concepts as applied to education.

2) A major development effort is needed and recommended. This effort should include adaptation and application of guides and models for agencies and institutions of various levels and types. An overall theoretical base and guide to application to the educational enterprise is needed as well as materials on specific application. These could also serve as basic instructional materials for training.

3) A comprehensive training effort should be implemented with a view to the degree of dissemination necessary to insure that PPBS has a fair trial. Special training efforts for advanced PPBS students and analysts should be included.

4) A pilot project for four to six states should be inaugurated to include most of the foregoing and to establish a volume of research data and practical experience necessary for sensible development of the Planning, Programming, Budgeting Systems.

PART II: INTRODUCTION TO THE PLANNING, PROGRAMMING, AND BUDGETING SYSTEMS INSTITUTE.

The cost of education in the United States is currently about $38 billion dollars annually. However, there is substantial agreement that adequate monies are not currently made available to meet the needs. There are recurring voices from the private sector with direct reference to administering educational funds in a more businesslike manner. The concept of educational funds being an investment in human endeavor has been widely accepted. As yet, however, little progress has been made in management of the educational establishment based on basic economic principles.

One of the promising developments in this aspect of education, and particularly in vocational education, is that of Planning, Programming, and Budgeting Systems. The purpose of PPBS, based on principles of classical economics, is to provide a method of planning, management, and control in order to realize the greatest possible gain from the investment of capital in the educational enterprise.

Those involved in making money decisions for education are becoming increasingly critical and resistive in allocating larger and larger sums on traditional (incremental) bases of budget requests. These persons are looking increasingly for evidence that available resources are spent in the most effective and economical manner possible. PPBS furnishes a vehicle for accomplishing that purpose.

The Research and Policy Committee of the Committee for Economic Development called for application of PPBS in the federal establishment in Budgeting for National Objectives in 1966. This statement was followed by Innovation in Education: New Directions for the American School, July, 1968, issued by the same group and issued the challenge to apply data systems, cost-benefit analysis, and other fundamental economic concepts to educational problem-solving. The American Council on Education made an excellent beginning in publishing "Planning for Effective Resource Allocation in Universities." Several states, including California, Wisconsin, Oregon, Hawaii, Washington, Minnesota, and New York, are involved in the implementation of PPB concepts. The federal government began to implement PPB concepts in the Department of Defense under the aegis of Secretary McNamara. The President initiated the system as a basic executive policy of the federal government in 1965. The U. S. Office of Education has made some progress in instituting PPBS, particularly the Bureau of Vocational Education, which has financed three national Institutes on this topic. One of these was conducted under the auspices of Teaching Research Division, Oregon State System of Higher Education, in August, 1968.

Educational administrators, as well as others, need assistance in formulating, adapting, and implementing these innovative, and hopefully, more effective methods of decision making.

The Genius of the PPBS.

The major strengths of Planning, Programming, Budgeting are inherent in the system. PPB is a systems approach to educational budgeting, management, and control.

Perhaps the greatest contribution which PPBS can make to educational organizations is that of requiring entire institutions to become goal centered through the specification of objectives. The efficacy of goal centered behavior in the motivation of human endeavor needs no elucidation here. Suffice it to state that the implementation of the systems approach should result in an organization's becoming goal oriented at every level.

Another major aspect of the system is in planning. PPB systems call for planning based on explicated objectives projected for several years in advance. This enables the decision-maker to see exactly what the proposed program is attempting to accomplish and establishes the long range as well as initial costs. This helps in preventing "foot-in-the-door" financing with the accompanying possibility of investment folly and long term funding squeeze. The explication of objectives will sharpen the entire operation and lays the foundation for evaluation of programs.

The consideration of alternative programs to attain the same objectives has much to offer through stimulation of innovative program development. The generation of alternatives can lead to experimentation which could result in more economical and/or more effective programs as well as stimulating innovation and involvement of staff in decision making.

The application of systematic analyses is the heart of the PPB system. Although cost effectiveness and cost benefit analyses are most often mentioned with respect to PPBS, there are four or five other levels of analyses which promise much improvement over hunch, nostrum, and the personal influence system. Higher level analyses demand the development of data streams. These appear to be available in only a few sophisticated institutions. Cost effectiveness can answer the question, "What is the cost per product (output)?" Cost benefit analysis can answer the question in economic terms, "Is the benefit worth the cost?" These analytic methods can also furnish answers to comparative costs between the several curricula, between schools in a system, and between identical subjects in different institutions. The application of the economic principle of marginal costs shows much potential in determining the optimum effective economic unit in size of programs and institutions. Much research is needed in developing various levels of analyses.

To have dollar decisions made on the basis of program has been the heretofore fruitless dream of many program-centered administrators. PPBS furnishes the vehicle to accomplish this goal. The program memoranda and issues sections are essential aspects of the system. Certainly, it seems reasonable to envision that judicious application of the PPBS will result in more thorough and acceptable justification of programs and result in higher levels of funding, even though this is not the primary purpose of the system.

The expenditure of monies for any purpose is an economic phenomena. It would seem logical that expenditures in education, as in other sectors, should be based on application of sound economic principles as is envisioned in application of PPBS. The basic principles of PPBS are derived from classical, capitalistic economic theory. In addition, the PPB vehicle should perpetuate a sense of financial awareness in the educational establishment with accompanying potential for economy. The lay decision maker will, hopefully, be favorably impressed and assume a more open minded minded posture toward the fund seeker.

Purpose of the Project. The general purpose of this project was to stimulate development of PPBS in the vocational educational establishment and thus enhance the quality and effectiveness of decision making at state and local levels. The supporting objectives were as follows:

1) To conduct a two-week national PPBS Institute for selected state and local vocational education administrators.

2) To stress the need for systematic program planning to meet changing requirements.

3) To provide opportunity for establishing broad professional contacts.

4) To promote the partnership concept in vocational education with respect to federal, state, and local relationships.

5) To acquaint participants with resources currently available for developing and implementing PPBS concepts.

6) To develop and collect PPBS materials.

7) To cooperate with a similar project at the Center for Research and Development of Leadership in Vocational-Technical Education, The Ohio State University.

The more detailed objectives of the Oregon Planning, Programming, and Budgeting Systems Institute were stated in the official Institute Program as:

1) To acquaint participants with educational and financial problems.

2) To develop need for a systematic, information data system as a basis for improved decision making.

3) To thoroughly orient participants in the structure and theory of Planning, Programming, Budgeting Systems.

4) To define data streams in vocational education necessary for use in the PPB system.

5) To introduce methods of analyses utilized in the PPB system.

6) To develop a guide or model for implementation purposes in state divisions of vocational technical education.

7) To define problems of implementation and solutions ad developed by practitioners in the field.

8) To define areas needing further research and development in application of PPBS to vocational education.

9) To orient participants to the policical processes involved in budgetary processes.

Description of Activities

The Institute.

The major activity of the Project was the planning, preparation, and conduct of a two-week Institute held August 19-30, 1968. The Institute site was on campus of the Oregon College of Education, Monmouth, Oregon, which also houses the home offices of the Contractor. A copy of the program may be found in Appendix A. It also lists the various consultants, speakers, and instructors.

In selection of Institute faculty, the main purpose was that of balance. Those included were noted researchers in educational administration, practicing vocational educational administrators representing several levels of responsibility, PPBS experts and analysts, economists, politicians, and state and federal bureau of budget personnel.

The program content was geared for beginners in the PPBS field and was planned as a judicious mix of practical application, PPBS and economic theory. The need for PPBS in the context of seeking solutions to problems in administration of vocational education was stressed in opening sessions. Closing sessions concentrated on necessary planning for implementation when participants returned to their home situations.

Participants were recruited on a team basis in cooperation with the

Ohio State Center. A team consisted of the state director for vocational-technical education, the assistant for budget, the program director or planner, and a representative of the state budget office. A selected few community college representatives were also included. The program was planned to present a thorough executive orientation to state directors and/or team leaders in the first three days. By agreement, the Oregon Institute included participants from states west of the Mississippi River and the Ohio Institute concentrated on participants east of the Mississippi River. Arrangements were made for some who had schedule conflicts to attend regardless of state of residency. A list of participants is shown as Appendix B.

A variety of methods were utilized in the Institute program. These included a judicious mixture of formal presentations, question and answer periods, discussions, small group work sessions, and individual reading and study. The overall program was moderately strenuous as viewed by the participants.

Pre-Institute Conferences. One of the activities proposed was that of conferring with two State Divisions of Vocational Education having an interest in implementing PPBS. The purpose of these conferences was to pinpoint problems which they were encountering in implementing PPBS and their implication for the Institute program. This was an essential procedure in making the Institute fit the needs of participants and as practical as possible.

Conferences were held with personnel of SDVE in Washington, Wisconsin, and Oregon. These states were selected as representative of three distinct levels of involvement in PPB. Wisconsin was in its third cycle of biennial PPBS budget preparation and had considerable experiences with the system. Conferences were held with Clarence Greiber, Director, and R. F. Birdnar, Administrative Officer, Department of Vocational-Technical and Adult Education, Madision, Wisconsin. A discussion was also held with Dr. Robert Williams, of the Coordinating Council for Higher Education in Wisconsin.

Conferences were held with Mr. Ernest Cramer, Director, and Mr. Richard Moe, Assistant Director, Department of Vocational-Technical Education, for the State of Washington. The Central Budget Agency had recently issued directions to submit the 1969-71 biennial proposals in a PPBS system and they were well into the problems encountered in initial implementation.

Conferences were also held with SDVE personnel in Oregon. These persons were primarily at the interest level, but had a mandate from the state budget director to comply with a PPB approach if possible. These conferences were with Dr. Wm. Loomis, Assistant Superintendent of Public Instruction for Community Colleges and Vocational Education, and Mr. Albion Ringo, Director, Vocational-Technical Education for Oregon.

These several conferences proved to be helpful and had a substantial, positive effect on the Institute Program. These effects were both substantive and procedural. A number of potential Institute instructors were also identified in these conferences.

Ohio State Center Liaison. Close communication was established early in the planning stages of the Project with Dr. Robert Taylor, Director of the Center of Research and Leadership Development in Vocational-Technical Education, The Ohio State University, and Dr. J. H. McGivney, Director of the Ohio PPBS Institute. Various aspects of joint planning included initial announcement and recruiting of participants for both Institutes, establishment of Institute dates, program planning, utilization of curriculum materials, potential instructional personnel, and various bibliography. The Director of the Oregon Institute served as a consultant for the second half of the Ohio Institute. The various critiques and evaluation of the Oregon PPBS Institute were shared with Ohio Institute personnel so that they might incorporate findings as seemed feasible in final planning of the Ohio Insitiute Program.

Cooperative activities continue with the Oregon PPBS Institute Director serving on a committee at the Ohio State Center to plan and conduct appropriate followup activities. The activities include some refinement and editing of PPBS materials and planning an advanced workshop for trainees who have had the basic two-week institute.

Collection of PPBS Curriculum Materials. The collection and preparation of materials has resulted in an extensive bibliography which may be seen as Appendix C. Much of this material has been collected and screened for suitability in training efforts. These include case studies suitable for teaching purposes. Reading and study assignments were made from this list and materials secured in quantity for distribution and use of each participant. See Appendix D for details of Institute reading assignments.

Staff Orientation to PPBS. The Director of the Oregon PPBS attended a three-week seminar on the subject in May. That seminar was jointly sponsored by the University of Virginia and the Bureau of Training, Federal Civil Service Commission. A variety of publications were collected in preparation for the Oregon Institute and were made available to all local staff. A full scale executive orientation was made to the Directorate, Teaching Research Division, and later to the entire professional staff of the Division. Local staff attended most sessions of the Institute and the Institute Director and Associate Director served as instructor and consultants for various topics.

Definition of further tasks in Planning, Programming, and Budgeting Systems. Most succinctly stated there are three basic needs in developing PPBS for education. These are: (1) basic research in cost effectiveness and cost benefit analysis; (2) preparation of additional curriculum materials; and (3) additional training efforts.

Federal, state, and local relationships were developed through planning and Institute activities. Persons from the various levels came to know each other, their interests and problems in PPBS. Participants from the several states established communication relationships with a view to future exchange of information on developments in PPB systems.

A variety of resources on PPBS, both personnel and written, were identified and made known to participants for future use. Details may be found in the bibliographical sources and the program consultants and instructors.

The limited amount of time available for development of original models and guides was mostly spent on search and adaptation of earlier models already developed. The major original contribution developed was a criteria for feasibility studies of occupational programs. An outline of this criteria may be examined in Appendix E. A full copy may be secured from Teaching Research, Monmouth, Oregon. The Ohio State Center produced a case problem which was utilized during the Oregon Institute (see Appendix F). A number of existing case studies were utilized for instructional purposes through the Institute. A list of these may be found in Appendix C.

PART III: THE OREGON INSTITUTE ON PLANNING PROGRAMMING AND BUDGETING SYSTEM

Introduction: The purpose of this section is to summarize and paraphrase the essentials of the various presentations, and other Institute activities. These will follow in sequence as in the Institute Program itself. Other pertinent introductory material was given in Part II and a copy of the program appears as Appendix A.

First and second days. The first two days were devoted to assessing the need for more effective decision making procedures, PPBS or other, in the context of state level management and financial problems in vocational education, an overview of the PPBS structure, and the definition of various tasks to be accomplished in utilizing PPBS in the field. These served as an executive orientation to state directors/ team leaders who could be present only during the opening days.

Dr. Keith Goldhammer, Dean, College of Education, Oregon State University, gave the first major address, "Research in Education Decision Making." Dean Goldhammer introduced his remarks with reference to the rapidly increasing complexity of today's shrinking world. He referred to the cultural lag between society and the classroom, differences in perceptions and reality, and the descrepancies between what we know and what we do. He gave extensive examples of institutional disfunctioning with respect to administrative practices. Thusly, the major point was made for the need to use knowledge and data to improve professional administrative practice. Dean Goldhammer's second major point was to define the educational administrator's task with respect to the initial point. He stated that the administrator must be the goal setter, the data collector, interpreter, and relater to decision making. The relevant data needed in these tasks include numbers about people, society, and the educative process, which bear on the defined problems and goals.

Thirdly, Dr. Goldhammer pointed out the five major functions of research with respect to decision making. These included:

1) definition and collection of adequate data

2) order the data and estimate validity

3) store and retreival system

4) define critical utilization of data

5) apply theory and data to practice

Dean Goldhammer concluded his presentation with a challenge for the participants to exercise leadership in needed changes in the bases of decision making. He conjectured that Planning, Programming, Budgeting Systems could accomplish the foregoing.

Mr. Cecil Stanley, Director, Division of Vocational-Technical Education, Nebraska, gave the next two presentations. The first focussed on state level administrative problems in vocational-technical education. The second focussed on financial problems at the state-federal level in vocational education. The purpose of these topics was to help set the need for application of PPBS. Mr. Stanley's presentations were from the view of a state director. The speaker elucidated on most of the problems stated, but they will be listed simply as follows:

1) How to develop a state master plan with all the planning implications?

2) Relationship between philosophy, goals, and objectives and how they can be validly established.

3) What should be the organizational base for post-high school vocational and technical education?

4) What should we do about vocational education at the secondary school level? How can we resolve this issue?

5) How can miltilevel programs be efficiently organized and articulated? Is there a method to determine how to solve this problem most economically?

6) What is cooperative education and how can it best be organized?

7) What real effect does federal legislation and red tape have on state programs? Can these be minimized?

8) What is an effective mix of interdisciplinary training in vocational education?

9) How can we effectively broaden the target population base?

10) What part should the private sector and organized labor play in the whole scheme of vocational education?

11) And what of the ancillary youth organizations such as the Future Farmers of America and others?

12) The entire panorama of evaluation.

13) Relation of vocational education to general education, community colleges, and four-year Colleges and universities.

14) Relationships with advisory groups and governing boards.

15) Coordination with teacher education programs.

In closing, Mr. Stanley suggested that PPBS should definitely assist in solving many of the problems discussed and hoped that it would solve all of them.

Mr. Stanley's second presentation was "State and Federal Finance Problems in Vocational-Technical Education." He addressed the problem of establishing priorities of expenditure with the limited funds usually available. This emphasis focused sharply toward the entire Institute program as a major purpose of PPBS is the effective allocation of scarce resources. He reased the following questions with respect to the problem:

1) Can PPBS, or any other system, help set priorities?

2) On what defensible bases?

3) Can the system be applied to the older, traditional programs?

4) Should an organization begin PPBS with new programs only?

5) Can PPBS establish the cutoff place for pumping money into any particular program?

6) How can needs be validated with hard data?

7) What kind of research and development effort is needed to apply PPB systems?

8) Can simpler systems of reimbursement (financial aid distribution formulae) be developed out of the system?

9) Can workload units be validly defined out of the collectable data utilized in applying PPBS?

A Panel discussion concluded the program day. See the program in Appendix A for panel participants. The Panel's assignment was to discuss any and/or all of the major questions/problems raised thus far by the two speakers. Major issues discussed included:

1) Research data, such as task analysis, manpower needs, which could help make vocational education relevant, with specific reference to Dean Goldhammer's opening address.

2) Dr. Worthington, Assistant Commissioner for Vocational Education in New Jersey, outlined how he hoped that PPBS could assist in making decisions in selecting from ten alternative proposals

in New Jersey.

3) Multiple budgets and the addition of a PPBS budget was raised as an issue. Is there a way out of the multiple budget dilemma?

4) What should be included for reimbursement in vocational education? The need to define the cost factors was emphasized.

5) Dr. Otto Legg, USOE, stated that he thought that analysis systems was the problem and asked the question, "Can a segment of vocational education be analyzed for baseline data?"

6) Several studies defining manpower requirement needs were cited as necessary data for valid program decisions.

7) The issue of new systems for reimbursement was discussed at some length. Dr. Worthington suggested program reimbursement and a subsequent delegation of authority rather than a concentration of decision making at higher levels.

The second day began with a presentation, "Need for PPBS at the State Level," by Mr. Arnold Cogan, State Planning Coordinator, Governor's Office, State of Oregon. Mr. Cogan quite naturally emphasized the Planning potential and strength of PPB. He began by defining the purpose of planning as assisting in decision making. Oregon's major planning activities in government are done as a part of the Governor's office and is in keeping with the trend in state government and management. The rationale given was that the resulting decision making at this level "has the muscle" to accomplish the planning task and implement the results. Both long and short range planning should be done on hard data and accurate interpretation. A system of allocating scarce resources must be established as there is never enough money to to around. Mr. Cogan emphasized the need for a multi-discipline approach in planning. He feels that the specialist tends to become myopic and sometimes fanatic. (A fanatic was defined as someone who redoubles his efforts when he loses sight of his objectives).

Mr. Cogan suggested the task force organization in attacking planning problems. He emphasized the importance of defining objectives and their function with respect to developing program structure and organization. Mr. Cogan closed with a brief resume of Oregon's state government experience with implementing PPBS to date. He suggested establishing demographic regions in a state as a basis for planning and re-emphasized that the federal government could not establish the planning effort necessary to solve the states' problems.

The next major program input was a double-session presentation of an overview of Planning, Programming, & Budgeting Systems. Presentor was Mr. Lavor Neuenswander, Director, Financial Management and PPBS

Training Institute, Bureau of Training, U. S. Civil Service Commission. His presentation is outlined as follows:

1) Identification of long range goals and short term objectives with the philosophy and purposes of the country, state, and local unit of society (government). Explication of program objectives in terms of quantifiable ouptputs is necessary for evaluation and analysis.

2) Definition of the program structure with respect to the goals and objectives. Preparation of the program memoranda based on the defined program structure.

3) Preparation of the program financial plan on both the financial and real resource cost bases.

4) Projection of costs for five years.

5) Application of various levels of analyses including cost benefit, cost effectiveness, and others.

6) Planning evaluation system and corrective feedback system.

Mr. Neuenswander pointed out that the PPB system costed out programs designed to achieve national (or other) goals. Implications of PPBS for administration includes possibly reorganizing to fit the program structure, keener competition for available funds, and realignment of accounting systems to fit the program structure. (This would be a GAO auditor's utopia). He also opined that making appropriations on a purely, political basis became more difficult with the PPB system. PPS does not make decisions for the decision-maker, but orders the data so that more effective allocation of scarce resources (decisions) can be made. He stressed the desperate need for developing an adequate data information system and to train competent analysts if one is to implement the PPB system. Mr. Neuenswander indicated that, in his opinion, the PPBS organization should serve as the right hand to the decision maker. He closed with remarks concerning operation of PPBS at various levels of an organization and that much adaptation and development was needed and easily possible.

An additional session was spent in a question and answer session on the various technical aspects of PPBS and the variety of problems arising in the implementation stages. Availability of training materials and opportunities was also discussed.

The Institute Program now turned its attention to detailed instruction on the various aspects of PPBS which were needed if participants were to understand and be able to implement the system.

The next presentation was on "Clarifying Philosophy, Goals, and

Objectives," presented by Dr. Gerald Gage, Research Professor, Teaching Research Division, Oregon State System of Higher Education. The following is a direct quotation:

"Objectives are statements which should follow the recognition of needs or the establishing of some priority of desires. If something can be classified as a need, the argument as to whether or not it should be met has largely been answered. To the extent any person or society does not have its needs met, it is lesser person or society than it could be.

There are times when it would be desirable to have something even though it isn't necessary to have it. We do appreciate air conditioning, wrist watches, and programs in vocational education. Occasionally, these come to represent conventional necessities which do improve human society. Individuals and society would be lesser without them. These should not be confused with whims. Whims can provide us with pleasure, but these objects are usually transient and in their absence we get along without them without particular discomfort. In spite of the inference in the television commercial, the loss of BAN deodorant would have little effect upon society.

I'm not going to do much to develop the concept of sources of objectives. One thing should be recognized; even needs are not always easily identified. For example, the student perceived as "not college bound" has the same need for successful learning experiences as the one who is perceived as "college bound," yet this need has gone largely unheeded. Yet, once we agree on a need, society generally attempts to meet it. A society which fails to meet the needs of its members is usually replaced by one which does, or at least promises it.

The way we respond to needs, desires, and whims depends primarily on our view of man. This gets into philosophy which is another topic albeit related. The point is that if you are going to develop objectives you should find out what exists and is needed. Yet many educators generate programs with no concept of whether they (the programs) are concerned with needs, desires, or whims. I suspect that the "need" being met is the one they (the educators) have for a job so a program is established which does little except provide those in it something to do. Certainly State Departments of Vocational Education are not different than other bureaucracies. Many of the staff are there to carry out functions which never leave the office nor do they change anything within. Of course none of you engage in such activities. We at Teaching Research do.

At any rate, don't try to state objectives until you have identified needs and/or provided some evidences of the consequences of meeting a desire.

There is something about the words 'educational objective' which appeals to the intellect and emotions of professional educators. The appeal isn't quite sufficient that most of them spend much time developing statements of objectives, but, at least as a dogma, the concept of objectives has become sacred as Mager points out in his parable of the seahorse who swam into the shark's mouth in search for fame and forture, '...if you're not sure where you're going, you're liable to end up someplace else.' No educator wants to be accused of not knowing where he is going or of imitating Columbus, that is, not knowing where he was when he got there.

Just as the educator doesn't appreciate the accusation that he doesn't know where he is going, he doesn't want it said he can't communicate to others where he is going. So the challenge in constructing objectives is to make them clear. If they are stated clearly 1) the planner can state exactly what he expects, 2) the operator knows exactly what he is to do, 3) the budget officer can state exactly what it costs, and 4) the evaluator can tell whether a particular method is having the desired effects. The only objectives which accomplish these things are those which are stated behaviorally. The concept of behavioral objectives is not a new one to you but I suspect we need to have considerable information about them before we can use that concept.

In order to implement the concept of behavioral objectives we need to think about the criteria which distinguish a behavioral or performance objective from one not stated in behavioral or performance terms. I'll discuss this with you Tuesday afternoon."

After the foregoing introduction, Dr. Gage dwelt on the following. He stated that people's intentions (to accomplish something) imply some outcomes (outputs/objectives) and strategies of achievement. The sources of our intentions are in law, needs, desires, and whim. A criterion for an objective rests on its worthiness and clarity. Worthiness probably must be decided on a value system; clarity can be developed in an objective on a specified basis. A paraphrasing of Dr. Gage's presentation results in the four major characteristics of a properly specified objective. These may be termed the ABCD's of Objectives.

1) Audience or target population.

2) Behavior or desired, skills, knowledge, attitudes.

3) Conditions of learning such as the setting, context conditions.

4) Degree of learning beginning with minimum level acceptable and reasonable and higher levels possible in clearly defined steps.

Dr. Gage emphasized that the foregoing outline resulted in a measureable criterion which was necessary if proper evaluation was to evolve. The "direct" and "indirect" nature of objectives was discussed with particular reference to difficulty, if not impossibility, of evaluation efforts if objectives were "second and thirdhand" removed from the program activity.

Buzz groups were organized and given the following assignment for Wednesday, August 21st.

Instructions to Group Sessions on Quantifying Objectives

1) What are the sources for your objectives?

2) What are the criteria for your objectives?

3) Define the differences between philosophy, goals, and objectives.

4) What are some valid objectives of your state level agency in quantifiable terms?

5) What difficulties did you have in answering the foregoing?

6) Please have one member of the group prepare a brief oral report and hand in a written report.

Each buzz group selected a leader and reported to the larger group. The reports followed the outline of the assignments and led to much discussion and opportunity for further clarification by Dr. Gage. He then, utilized examples of specifying objectives for the instructional sessions on objectives. One is stated as follows:

OBJECTIVES

On a test, participants in the PPBS Institute can:

1) List two sources for objectives.

2) List four characteristics which determine whether or not an objective is clearly stated.

3) Identify the characteristic(s) missing in an incompletely stated objective.

4) Identify an objective which contains all the suggested characteristics.

5) List the two main criteria for evaluating an objective.

The sessions on Objectives were concluded as Dr. Gage administered the following test:

TEST ON OBJECTIVES

1) List the four characteristics which are part of a clearly stated educational objectives.

Here are four objectives written for students enrolled in Social Studies, grade 5. The students should:

a) Describe the way horses were used by pioneers in the northwest United States before 1900.

b) List five products.

c) Label a minimum of thirty-five of forty-eight mainland states on an outline map of the United States.

d) Appreciate the importance of history in understanding the Pacific Coast Indians.

2) Which characteristics are not present in the first objective?

3) Which characteristics are not present in the second objective?

4) Which characteristics are not present in the third objective?

5) Which characteristics are not present in objective number four?

6) List two sources of objectives.

7) List the two main criteria for evaluating an objective.

8) Write one objective for your Department of Vocational Education which meets the criteria of a behavioral objective.

The next two sessions were spent on the topics of "Developing the Program Memoranda, Terms and Definitions." The Institute Director served as instructor for these sessions. His presentation is paraphrased.

The speaker introduced his topic by stressing the need for definitive terminology. No apologies should be made for particularized nomenclature which is necessary for clarity of communication in any field. Much clarification of terminology is needed in any developing field and PPB is no exception.

A "vehicle is needed" in which to transport the PPBS message. This vehicle is the program memoranda (PM). What is a PM? The program memorandum is the document for an institution or agency, which includes the statement of purposes, and objectives, description of programs, budgetary and other analytical data, and the recommendations. The speaker conceives of the PM as a broadly based, inclusive type of document, rather than a simple program description. It is a vehicle for ordering information to assist the decision maker in arriving at rational decisions. In jargon closest to current usage, it is the budget document. The inclusive, broad aspect of the foregoing definition is valuable in focusing on a primary goal of PPB systems--decision making based on program.

Dr. McAbee next outlined the elements of the program memoranda.

1) General statement of purposes and long range goals of the agency beginning with needs.

2) Sources of tasks (programs) assigned, assumed, or legally mandated.

3) Reasons for the general and specified needs.

4) Particular issues involved.

5) Assumptions on which the PM rationale is based.

6) Specific objectives for the various program categories (output).

7) Program categories, sub-categories, and elements defined.

8) Alternative programs.

9) Analyses including the cost effectiveness and cost benefit levels.

10) The program financial plan (PFP) for the recommended programs.

11) Projection of future costs.

12) Strategy underlying the recommendations.

13) Estimation of available resources.

14) Assessment of the political factors involved.

A number of definitions were utilized during the presentation. These included:

Alternative programs are programs designed to attain the same objectives as the origianl program.

Goals emanate from statements of belief and philosophy. They constitute longer range attainment in contrast to objectives. They are also more general in nature.

Objectives consist of statements which can be utilized as measurable criterion. A properly specified objective includes the target population, behaviors desired, content, context, or setting for the program, and degree of attainment.

Cost effectiveness is the cost per program unit produced.

Cost benefit is the relationship between the cost of the product and value of the benefit of producing it. It may be expressed as benefit-cost.

Output is a unit of product or service of the program activity. Technically, it is what is produced--the means of achieving the objective.

Needs are the goods and services required for the well-being or improvement of the citizenry in society.

PPBS is a systems approach to defining, collecting, and analyzing data, which can be logically brought to focus on the problem of allocation of resources for the purpose of improving the effectiveness of the decision maker in maximizing the benefits for the money expended. It involves the definition of needs, goals and objectives. Definition of program structure, categories, and elements follow. Alternative strategies are developed to meet the objectives and an analysis of alternatives presented. Analysis in PPB varies from cost-benefit, considered by most to be of the highest sophistication, to mere unsupported opinion or prejudice of the decision maker.

A variety of additional sources of definitions are available. Probably the most complete in "Planning, Programming, Budgeting Systems Analysis GLOSSARY," published in January, 1968, by the U. S. Accounting Office.

Thursday, August 24.

Dr. Otto Legg, Assistant Director, Program Planning Division, Bureau of Vocational-Technical Education, U. S. Office of Education, gave a presentation on the status of PPBS with respect to USOE viewpoint, "Planning and System Analysis, (PPBS) Development in Vocational-Technical Education." Dr. Legg's remarks focused on planning and systems analysis, evaluation and presenting evidence of program worth in an understandable fashion. Systematic planning is demanded to obtain a better balance of program with due consideration to the needs of the people and resources available. He stressed the scope of the task in vocational education to be threefold: initial training, retraining, and continued upgrading. Comprehensive planning, including alternative programs, is necessary to fulfill the needs. Broad planning should also include non-education agencies and resources. Dr. Legg next defined the sources and nature of agency mission, long range goals, and short term, measurable objectives and the necessity for these to be consistent (reliable). The objectives must be in a time frame and otherwise quantified in order that degree of attainment is measurable. These, then, serve as a blueprint for action and define the programs.

The speaker next emphasized that analysis provides the information but not the decision. Analysis must begin with the problem definition. The necessity and scope of data required for analyses were discussed. The need for new types of data in order to accurately forecast needs, programs, and costs was shown to be an expansion of traditional planning patterns.

The dangers of confusion in defining problems with new dimensions was stated. Changing value systems (evaluation bases) may further confuse the definition and palnning effort. A combination of accepted values and facts are usually necessary for acceptability to the decision makers.

Planning must also include valuation if it is to be complete. Dr. Legg defined program evaluation as follows: "Program evaluation is a process of determining the extent to which predetermined objectives and predetermined levels of operation are obtained." Evaluation must provide the corrective feedback to program as well as furnishing the measure of success or failure. As long as change takes place, educational leaders must increase the attention to a systematic process of planning that change.

Dr. Legg pointed out that, in the increasing competition for funds, more sophisticated means of analysis (cost benefit and others) must be developed if we are to convince the decision makers that educational requests are valid. Research efforts and program operation must proceed together if decision making is to become more effective in helping the field of education meet the needs and achieve its objectives.

The various buzz groups next reported on the previous assignment, "Defining Data Needs in PPBS for the Program Memoranda." These reports resulted from the following assignment:

1) Develop a PM outline for a selected real or hypothetical educational institute.

2) Fill in the outline, as far as time permits, with a list of data which is needed to complete the PM.

3) Compare the data needs with what you know to be usually available. List those items about which you would need additional details.

4) List any technical vocabulary which needs clarification.

5) Have one member of the group prepare a brief oral and written report for Thursday's session.

This session was directed toward assisting the participants to face the questions which must be answered in each situation as a step in implementing PPBS. After the buzz group reports, an individual "study and think" session was scheduled for focusing on the particularized situations represented by each participant. This was a difficult assignment at this stage of the Institute and it was planned to be. Questions and problems raised did much to develop readiness for subsequent Institute topics, presentation and study.

Dr. William Freithaler, Department of Economics, University of Virginia, and frequent instructor on PPBS topics for the Bureau of Training, Federal Civil Service Commission, was the next major speaker. Dr. Freithaler's assignment was to cover the basic economic and statistical principles in PPBS, followed by presentations of cost effectiveness and cost benefit analysis.

He explained briefly, with numberous examples and statistical illustration, the following economic concepts. He illustrated their application to vocational education.

1) The Phillips Curve Concept

2) Law of supply and demand

3) Law of diminishing returns

4) Marginal analysis

5) Macro vs. micro economic theory

6) Indifference curves

7) Regression analysis

8) Theory of Discounting

9) Dealing with Uncertainties

The major point was that PPBS emanates from classical, economic principles of the capitalistic society and thereby furnish a valid base to the economics of education and the various analyses utilized in the PPB system.

Friday, August 23.

"Introduction to Cost Effectiveness Analysis"

presented by Dr. Freithaler

The first task in analysis is to define the variables to be costed. These include both independent and dependent variables. A dependent variable would be wages, which vary according to sex, age, education, and location of the wage earner. An independent variable would be the wage as reflected in the choice of job level of which the worker is capable.

As early decision in analysis must be made as one of two basic approaches: (1) the direct financial or out-of-pocket costs of (2) the real resource or total economic costs. Dr. Freithaler pointed out that the first would result in the amounts to be actually budgeted and spent and the second approach would be the toatl, direct and indirect, costs to the institution, the individuals in the program, and society in general. The real resource cost bases should be utitlized primarily in cost benefit analysis and the financial approach to cost effectiveness analysis. Cost benefit was defined as the ratio derived by dividing the value of the benefits by the costs. He briefly outlined the need for adequate data streams for various types of analysis. The implication for cost accounting systems, developing analysis for alternative programs, and necessity for evaluation systems in order to measure success/failure and thereby to really ascertain the effectiveness in dollar terms were also developed. He suggested a simple amortization plan for assigning facility costs to output units. Support service costs can be handled in the same manner--dividing total support service costs by the FTE (full time equivalent) in educational situations.

With the foregoing overview, Dr. Freithaler next turned to a case study application in education of the principles. This case was taken from "Cost Analysis for Planning-Programming-Budgeting Cost-Benefit Studies," by J. D. McCullough and published by the Rand Corporation. The instructor led the participants through this case step-by-step with much question and answer discussion. Unfortunately, the McCullough Case is too lengthy to insert in this report; however, it is recommended as essential training materials and can be easily secured (see Bibliography in Appendix C).

A buzz group was next on the schedule. The topic was "Potentials for Research and Development in PPBS." The following assignment was given:

1) Please address yourself particularly to research potential in cost-benefit and cost effectiveness analyses which would furnish baseline data which might have a general application.

2) List the foregoing and submit a brief oral and written report.

This exercise produced a number of suggestions for research and development needed in vocational education for the PPBS. These included development of PPBS applications for various levels of application, i.e., state divisions, federal office, schools, departments, single program elements. Baseline data are needed in manpower requirements, manpower characteristics and availability, and program costs based on comparable models. Data leading to a criteria for cost effectiveness and cost benefit ratios are desparately needed. Models for assessing the foregoing factors, and especially the value of benefits, are needed. As to pricing benefits, increased income and pricing spillover benefits are essential data needs and represent the greatest vacuum in PPBS data requirements. Evaluation models were designated as a "must" need if application of PPBS was to fulfill its potential.

The first week's program concluded with a "Review of the PPBS Structure" by the Institute Director. This review included the following items:

1) Overall review of PPBS.

2) PPBS is a system for planning, management, and control.

3) It is based on sound economic principles.

4) Furnishes the basis for a goal contered operation.

5) It is adaptable to several levels of operation.

6) PPBS is a vehicle for organizing data to improve decision making.

7) It maximizes the results for the dollar expended.

8) PPBS can be used with a variety of analytic techniques.

9) Provides a basis for generating and comparing alternative programs.

10) PPBS provides for evaluation and corrective feedback.

11) Projects expenditures over time.

12) Provides for stipulation of issues and priorities in program.

Monday, August 26.

"Planning Cost Analysis of a Training Program,"
presented by the Institute Director, Dr. McAbee

In my opinion, the area of cost analysis is the area in which much research and development work needs to be done if PPBS is to fulfill its potential. This is, maximizing returns on the investment in consonance with need priority. The need priority has a vital role in consideration of alternative programs as the most economical (cheapest per unit) may not meet the greatest need. There are two other essential, primary considerations: (1) should a real resource (total expenditure) or financial approach be utilized in analysis of costs and benefits?; (2) how are the terms defined? There is much obfuscation in PPB terminology. One peruses the literature and might easily assume that cost utility, cost effectiveness, and cost benefit studies are synonomous terms. They are not! (For current purposes, cost benefit and cost effectiveness definitions may be found in an earlier presentation on Program Memoranda and Definition of terms).

Several issues present themselves in computing cost benefit ratios for various programs. The first, what costs should be considered? The primary issue here is the financial (direct) vs. real resource base. The real resource approach should be used in cost benefit analysis in order to compute price of values or benefits. These values are usually not recoverable or accrue to the institution or agency and therefore, cannot be utilized in the operational budget. What benefits (values) should be included? It is difficult at best to assign dollar values to some benefits. Some benefits, such as increased income stream are relatively easy to compute. Others, such as the wide variety of so-called "spillover" values, are more difficult and frequently, impossible. The analyst cannot accurately foresee everything in the future and place a price tag on it. There are three or four kinds of values which help in getting a start. These include:

1) Value of increased income.

2) Value of increased productivity.

3) Spillover benefits such as decreased welfare and crime rates, and increased health status.

4) Value of residual educability. (Residual educability is the added education potential accruing to an individual which is attributable to completion of a program).

As you will note there are not readily available data on many of these items. A massive research effort is needed. However, a persevering analyst will get at some of these, especially the increased income concept.

In cost effectiveness studies, we are trying to get at the unit cost, cost per output. First, we again must determine the basic approach, real resource or financial cost basis. Secondly, we must list the costs to be assessed, make certain they are computed on a reasonable basis, and use the same model or system in computing different program costs for comparison purposes.

Direct financial costs may be listed simply as: personnel, supplies and materials, facilities and equipment, supporting services such as administration, counseling and maintenance. The student may also have some direct costs, which might not be in an agency budget, such as lunches, transportation, clothing, etc.

In addition to these, a real resource approach calls for the addition of opportunity costs, transfer costs, foregone, and implicit costs. The values of the benefits must also reflect these items.

A criteria for deciding on what costs to include and how to compute them will depend on the following factors:

1) The level of operation, i.e., state agency, school or college, department.

2) It is acceptable or credible?

3) Can anyone in the shop do the computation?

Most agencies already have clarified systems for determining direct, financial costs. Indirect and real resource costs will usually have to be added to these in cost benefit analysis.

The principle of discounting rears its ugly head at this point. You will recognize that the dollar value of some of the costs and most of the benefits in cost benefit analysis is at some point in future time.

In other words, when we ascribe the dollar value/benefit of a given program, we are talking about a value which will probably accrue or exist in the future. Now, the current dollar does not have the same value as a future dollar--it is much less depending on the time span and current price of money. The current dollar is not as valuable as a future dollar because people won't pay as much for it. Go down to the bank and ask them! Ask them the price of a $1,000 with delivery specified in 1975. It won't be $1,000 current; it will be less. And the reverse operates also, if you buy a $1,000 now, it will be worth more at some future date.

Now, in order to present an accurate computation with respect to a cost benefit or other analyses, we must correct current values of dollars, etc., by discounting and annutizing so that future values are reflected into today's terms. These corrections should be applied to both future costs and benefits in order to get the future dollar values in today's terms.

Discussion followed the presentation and the following assignment was given for the succeeding buzz group session:

Planning An Analysis for Vocational Training Programs

1) Select an existing program for analysis.

2) Decide whether to base your analysis on real resource or strictly financial costs.

3) List the objectives of the program.

4) List the individual items of expense you would include in the analysis.

5) List three alternative programs which could conceivably meet the objectives.

6) Are there data available in your shop needed for the analysis? If the answer is "no" please list what is needed.

The various buzz groups reported at a general session. There were major problems on prorating facility, equipment, and support service costs in training programs. It was suggested that these be simply prorated on an FTE (full time equivalent student or teacher) basis. The need for an adequate data stream was emphasized as most reporting groups had long lists of data not currently available, which would be needed in these computations. The factors of real resource and financial costs were discussed also. The principal clarification needed was the type (direct, financial) which makes up the operational budget and the costing approach which arrives at a cost benefit ratio for a program from an examination of all the costs and all the values to and in society which are attributable to the program.

"Budget Cycles, Formats, and Crosswalks"

by Harold V. McAbee

These three related topics are technical in nature, but necessary in any type of budget presentation. Application of the PPB system lends a new dimension to budget format and leads to the necessity for crosswalks.

Budget Cycles. Most administrators recognize that they are working with about three budgets at any one time. One will be the budget in preparation (Planning Stage). The second will be the current operating budget and the third will be the "cash flow" budget. All of these will be operating on a different time schedule and seldom will cycles within these three budgets become congruent.

Now, what is a budget cycle--PPB type? An iterative system serves to illustrate. An excellent illustration may be seen in "Systems Analysis Techniques for Planning-Programming-Budgeting," published in 1966 by the Rand Corporation. The author is E. S. Quade.

A simple systems outline also furnishes an excellent illustration of a PPBS budget cycle. It follows the following steps: Identify problems, analyze problem and set goals, determine solution (program) strategy, implement, evaluate, and introduce corrective measures.

The foregoing may serve as the basis for establishing a calendar of dates and deadlines so that the work for the entire budget cycle may be planned and timed. Begin at the future date represented by submission deadlines and use backtiming throughout to establish a calendar through the entire clcle. This is especially important in a PPBS budget cycle because it will probably involve a long time span than represented in a legally designated, fiscal period budgets. An example of a budget calendar follows. All well managed shops should develop one.

CALENDAR

BUDGET 1968-69

1967		
December	12	Forms issued to heads of departments
1968		
February	12	Budget estimates due in Business Office
	19	Budget conferences with heads of departments and Superintendent

March	19	Preliminary budget estimates to Board
April	2	Preliminary budget explanation of increases and decreases by items to the Board
	16	Revision of budget after all salaries fixed
May	7	Preliminary budget explanation showing estimated levy
	7	Board discussion of budget
	21	Board discussion of budget
	21	Preliminary sets of budget to the Board
June	4	Completed budget book to Board
	18	Budget and site levy adopted by Board
	20	Budget publication
July	8	Public hearing on budget; application to increase levy adopted by Board
	10	Budget copies distributed to staff and other employees
August	9	Budget certified to auditors in Polk and Warren Counties
	10	Budget bound (file copies)

Budget Format presents another primary problem in a PPBS system. Most traditional type budgets list the inputs as budget outputs, i.e., teachers appear as objects (outputs) rather than inputs. This differentiation must be made in a PP budget because of the specification of objectives in terms of outputs, which are the measurable criterion and quantitative in nature. But these represent end results to be reached as contrasted with methods-means (input) items.

A PPBS budget format (Called a PFP-program financial plan) will be in terms of input and output items arranged according to the program structure. This format will almost always be different than currently budget forms. Expenditures will also be projected as will data on needs and inputs. A suggested projection is three-five years. In the real world it will probably be only for the fiscal period immediately ahead. The State of Wisconsin has had several years experience with the format problem and have developed format for an excellent budget document. Write to Mr. Clarence Greider, Director, Vocational, Technical, and

Adult Education, Madison, Wisconsin, for a copy. Because of variance in state and local organizations and degrees of extertise, most agencies will probably develop its own format.

Crosswalks. One of the most perplexing problems encountered by PPBS implementers is the problem of interpreting the newer, PPBS formats to accountants, fiscal agencies, and legislators. When budget inputs and program objectives are properly specified and arranged, the resulting figures are not comparable to former authorization or accounting formats. It is likely that legislators and accountants will not like the new approach. At this time when educators are requesting ever increasing sums of money, the new format may well be interpreted as an attempt to confuse by some legerdemain and thus obtain appropriations not otherwise forthcoming. The accountants get upset because they have to change their account forms, which in my experience, accountants are usually loath to do. Given the usual power which financial types often wield in an organization, it behooves the PPBS implementer to sidestep this obstacle. It can be done very simply. Translate the PPBS budget into authorization format or the accountant's terms once the original analysis has been completed. If the agency has an EDP bookkeeping system, an infinite number of budget formats can be plugged in and retreived. If the accounting is done manually, it is suggested that the crosswalks (translations) from the PPBS format to the accountants format be performed during the development of the PFP.

There is considerable work under way toward solutions to these problems. Much more needs to be done. Watch your professional and USOE publications for developments. One last admonition - a PFP must be developed for various levels of operation. A federal format will not likely fit state or local needs and vice versa. A state agency format will not usually furnish a total solution for the local district.

Tuesday, August 27.

"Discussion of Case Study: Benefit-Cost Estimates for Job Corps and Implications for State Level Vocational Education"

This case study was prepared for the Office of Economic Opportunity by Glen G. Cain, Department of Economics and Institute for Research on Poverty, University of Wisconsin. This was an actual case, originally prepared for OEO purposes, and has been utilized as a training aid for the Bureau of Training, Federal Civil Service Commission and others.

The case served to illustrate a number of difficulties encountered in initial attempts in applying cost benefit analysis. Some of these are scarcity of valid data, lack of precedent in utilizing this approach, problems in the real resource approach, credibility and acceptance. The paper is a pioneering effort in applying cost benefit analysis to educational programs.

Participants had read the case and the Institute Director served as discussion leader in the discussion. The following points were highlighted which have direct and indirect implication for applying cost benefit studies to vocational-technical education:

1) Some intangibles present difficulties for measurement. What does one do about these? Secure added data, forget them, handle with statistical methods dealing with uncertainties.

2) A variety of characteristics of the target population, including place of residence, will affect the accuracy of some of the data and baseline measurement.

3) Cost data must frequently be brought up to date and the principle of discounting reapplied.

4) What discount rate needs to be applied? My answer was to use rate currently needed to finance projects for the institution for the program period involved. If it is for one year, the banks can easily tell you their bid price to finance a short term program. If the analyst is projecting costs and benefits fifteen years in the future, the price of government bonds maturing at that time, might be a proper rate.

5) When the total costs are compiled, one usually learns that training is a good deal more expensive than first examination reveals.

6) Costing analysis must reflect the initial "startup" or research and development costs separately. If these are charged to operating, unit costs become distorted upward. In new programs, this factor will be significant.

7) Capital outlay costs must be prorated and amortized.

8) A way must also be found to prorate support service costs. This is a major problem for state agencies which specify student programs as objectives. The stage agency costs must then be distributed or prorated to the districts operating the programs, or not charged at all, which distorts the real and actual costs downward. For agencies operating programs, a fair and simple way is to divide the support costs by the FTE (full time equivalent of students, teachers, or perhaps the number of contracts or districts).

9) So-called transfer costs must be carefully handled. It is easy to impute equal values to two entities which are not really comparable.

10) What kind of cost-benefit ratio constitutes a "good" (acceptable) one? Few data are available, but one does know that if the $\frac{\text{benefit}}{\text{cost}}$ = less than 1., the program won't pay off. Much research needs to be done in this field. It is likely that the standard for an acceptable cost benefit ratio would vary in different agencies, institutions, locations, types of programs, and quality of programs.

"Generating Alternative Programs" constituted the next buzz group assignment. Although the generation of alternative programs to meet the same objectives is an essential part of PPBS, few agencies, especially in education, have made consideration of alternatives operational.

There are a number of standard techniques which can be utilized in the alternative program effort. One is to vary the richness of the program by changing the time span involved, the number of target population, teachers, materials, and appropriate but added applied work experience. Such changes can be costed and the resultant change in cost benefit ratios computed. Evaluation of results can determine whether any of these variations actually resulted in an improved effectiveness and cost benefit ratio. A second major method of alternatives is to change the target population and probably, but not necessarily, the program.

Another major means of consideration of alternatives is to transfer the activity from the public to the private sector. This may be bold in conception and grate harshly on public-type mentalities, but the fact remains that the private sector does a tremendous amount of successful training and convinces people to pay for it and they don't stay in business if they don't make a profit.

The essential in valid analysis and choice between alternatives rests with properly specified objectives and congruency with goals.

The buzz group assignment follows:

Instructions to Group Sessions
on Generating Alternative Programs

1) Identify three types of training programs for which your agency has some responsibility.

2) Define the quantifiable objectives for these three programs.

3) List at least three alternative methods of reaching the program objectives.

4) Indicate the group concensus on the comparative costs of each of the three programs.

5) Indicate the group concensus on the comparative benefits.

Most of the responses and discussion from the buzz groups were on a philosophical level. Mainly, does a state level agency have the flexibility to generate alternative groups and why should the private sector get into the picture?

Case Study: "Cost Benefit and Cost Effectiveness Analysis - Development of HEW Disease Control Case."

The use of this contrived case was designed to review the principles involved in analysis as actually applied. The case is a contrived, rather than actual, and has some builtin fallacies, the purpose being to have participants attempt to spot these as an analyst. The fallacies focused on general credibility with respect to the value of the benefits, validity of some projected data, and quesionable assumptions as to outcomes of the program.

A Benefit-Cost Problem was next assigned. This Case was designed by Dr. Joseph McGivney and Mr. William Nelson, Ohio State University. All participants worked through the problem. A number of suggestions were made for modification and forwarded to the authors. The Case may be found in Appendix F.

Wednesday, August 28.

"Levels and Types of Analyses"
presented by Mr. James V. DeLong

Mr. James V. DeLong is an Analyst, Program Evaluation Staff, Bureau of the Budget, Washington, D. C.

It is a common fallacy to view PPBS only in the context of cost benefit and cost effectiveness analysis and to decide that an agency can't get into PPB unless a capability exists to generate these types of analyses. Several other levels of analyses exist and should be utilized Selection of the level of analyses to be utilized should be made on the basis of the current capability and time constraints. It is quite common and acceptable to begin at lower levels and succeed to higher degrees of sophistication as experience and skills increase.

Mr. DeLong then outlined seven (7) levels or types of analyses. These will be given in descending order of sophistication:

1) Cost benefit analysis.

2) Cost effectiveness analysis.

3) Direct cost per unit of output.

4) Cardinal weighting of advantages and disadvantages of the program.

5) Ordinal weighting or ranking of alternatives.

6) A simple qualitative rationale for the recommendations.

7) Simply state why or how the decisions were reached.

Mr. DeLong's second presentation was on the "Role of the Budget Examiner and Analyzing Needs." He began by outlining some role generalities of the analyst. These included:

1) Decisions are made on economic terms.

2) The goal is to maximize value of the dollars spent.

3) Must differentiate between risks, uncertainties, and assumptions.

4) Be creative in quantifying the social sciences.

5) Stimulate development of alternatives.

6) Improve data collection, development, and interpretation.

7) Urge development of valid program evaluation.

8) Insist on accurate use of proper statistical models.

9) Examine organizations and their management and operational programs.

10) Reduce the requests.

11) Evaluate legislation.

12) Question assumptions and objectives.

13) Cross examine agency representatives.

14) Play the Devil's Advocates role.

15) Assist agencies in their PM development and help them prepare for hearings.

A complete guide, "Program Evaluation Checklist," may be found in Appendix G.

"Problem in Implementation: PPBS in the Washington
State Division of Vocational Education"

Mr. Richard Moe, Assistant Director, was the presentor. He began by outlining Washington's experience with developing a data bank. He indicated that a decision was finally made to collect and store all data available without too much attention to well defined needs. A massage of data raised some startling questions. For example, a close scrutiny of the data on training programs in Washington led to a re-examination of the objectives of vocational education. It indicated a need for administrative reorganization. It enalbed them to re-examine uneven distribution of monies by program, population, and geography.

Major problems were encountered in initiating PPBS due to lack of direction from the Central Budget Agency. A new budget format had to be developed. Adequate data development posed some "hard questions" such as, "The State of Washington trains 23,000 secretaries annually and has need for 15,000. What do we do with this information?" (Discussion among participants revealed that only one or two would be willing to reduce the program as a result of these data).

A panel discussion concluded the session on implementation problems. Several of the participants gave historical accounts of how their state came to be interested and involved in PPBS. Two other interesting questions arose. One, where should the PPB expert be in the administrative organization? Two, does PPBS really move essential decision making up or down the administrative hierarchy? The panel closed with references to some of the potentials in the PPBS and problems of inducing change in state agencies. An ad hoc discussion of political factors involved set the stage for the next day's program.

Thursday, August 29. Frequent references are found in PPBS literature to the political aspects of the entire budgetary process. A similar reference will usually arise in discussions concerning the potential of PPBS. Reality being somewhat political, it was determined to spend at least one day of the Institute on politics and the budgetary process. This came to be known as the "political day" at the Institute. A variety of speakers were chosen representing several aspects of the political arena in education. These included professional educators, state legislators, and a state budget director.

The initial presentation on the political day's program was made by Dr. Angus Rothwell, Executive Director, Educational Coordinating Council, State of Wisconsin. Dr. Rothwell's topic was: "Political REalities of the Budget Making Process." His thesis was the "hidden agenda" or "invisible committee" syndrome operating in current decision making operations. He detailed the thesis with a thorough outline of all the aspects of educational decision making in Wisconsin. These included the governor's office, coordinating council, budget agency, university system, college system, state department of education, state department of vocational education, area vocational districts, county teacher colleges, community colleges, and public and parochial elementary and secondary schools. With the past history, current programs, and future needs detailed by all the foregoing elements, it was easily discernible that budgets and politics go hand in hand in the State of Wisconsin. Dr. Rothwell's second thesis was that newer ways of conducting studies and evolving solutions must be developed. He was quite optimistic that PPB systems could help in a substantial manner.

The next presentation on the "political day" program was, "A Legislator Looks at Educational Requests," by State Senator Lynn Newbry, who is an experienced legislator and has served as Chairman of the Ways and Means Subcommittee on Education in the Oregon Legislature. Senator Newbry introduced his topic by briefly reviewing the parameters of legislative authority in considering requests and making appropriations. Oregon's Constitution precludes deficit spending; therefore, every legislature must develop a balanced budget with an income constraint and unlimited needs, the basic problem for the legislator becomes one of priorities. Senator Newbry's posture is that most needs and requests are defensible, but that certain insitiutions in the educational arena could improve their candor with respect to budgetary details. Senator Newbry explained that every legislator, especially if he is on Ways and Means, develops a set of priorities for allocation of monies. He was willing to share his priorities and they appear as follows:

1) Wards of the state, i.e., prison inmates, retarded, etc.

2) Mental health

3) Welfare

4) Education

(There were others but he did not delineate as there was no particular need for purposes of this presentation). The Senator indicated that the toughest job in setting priorities was within the educational category. His appears as follows:

1) Elementary and secondary education.

2) Community colleges/vocational education.

3) Undergraduate higher education.

4) Graduate and professional higher education.

He welcomed the PPB system as having potential for setting priorities and opined that it most likely could be applied initially to consideration of new programs.

Senator Newbry concluded with some miscellaneous remarks. One, existing programs must be examined first when setting priorities. Two, educators could help if they would establish some inhouse priorities. Three, candidness with respect to budgetary processes sometimes gets all mixed up with academic freedom. Higher education ought to do better than that. The legislature will probably take increasingly closer views at the management of the various state agencies.

Senator Newbry's presentation was followed by a panel discussion entitled "Improving Communication: A Dialogue Between Professionals, Legislators, and the Laity." Panel members included the two speakers of the morning, Dr. Rothwell and Senator Newbry, Dr. Allen Lee of Teaching Research, Senator Richard Hoyt, also of Ways and Means, and Mr. Cleigh Penwell, Oregon State Budget Director.

The thesis of the panel was how to get effective communication between persons of different background on educational matters. There was much focus on effective presentations of information using a variety of visuals, etc. Senator Hoyt made the major contribution, however. His point was that much of the data doesn't produce much information. It is not interpreted meaningfully. Senator Hoyt saw the need in communications to be that of ordering data, on a proper conceptual base, so that it makes some sense. He thought that PPBS could fill the need and "help him do a better job."

Because of the unique opportunity to consider, in toto, the views of a state (Oregon) budget directors toward education and the real world, Mr. Penwell's remarks are reproduced exactly as delivered at the Oregon PPBS Institute.

"The Governor's Office Looks at PPBS and Education Requests"

by Cleigh Penwell, Oregon Budget Director

"The Education Budget Request. I sort of decided in my own mind I didn't want to talk about that very much anyway. I was going to talk about something entirely different, but it didn't say anything at all about PPB. And so I didn't hear any particular march to PPB: so I'll just go ahead and say what I intended to and then afterwards when we ask questions and have discussions, you can air your questions through PPB. Another little problem I had, I made these notes last night, you know, so I wheeled the typewriter out there in the family room and the Democratic Convention was on. That was quite a show. I was a little late getting finished, and I probably didn't do the job I should have. Anyway, with that in mind, we'll go ahead.

One thing we're going to do here in the beginning of this thing is sprinkle in a lot of kind of interesting little statistics, mainly because I'm fascinated by the statistics when they're interesting ones and I've got some here--they really astonish me--and I've found that, so if I just drop in some type of static that doesn't seem to have any particular relevance to what I'm talking about, you'll know it's just because it was an interesting one. I've got a little book here that I stumbled on the other day, and since apparently this is being recorded, I'd better give credit to it, so I'm going to draw quite a few things from it--it's called *Dynamics of Change*. Published by the Kaiser Aluminium Company. And now one of the things I want to do is read the introductory statement to you. I thought it was kind of interesting. 'At exactly 0513 on the 18th of April, 1906, a cow was standing at 123″ - 20' West Longitude, 37″ - 58' North Latitude. Somewhere between the main barn and the milking shed on the old Shafter Ranch in California. Minding our own business, suddenly the earth shook, the skys trembled, and when it was all over, there was nothing showing of the cow above ground but a bit of her tail sticking up. For the student of change, the Shafter cow was sort of a symbol of our time. She stood quietly enough, thinking such gentle thoughts as cows are likely to have, while huge forces outside her pen built up around her, and within a minute discharged it all at once in a great movement that changed the configuration of the earth, destroyed a city and swallowed a cow. If we do not learn to understand and guide the great forces of change at work on our world today, we may find ourselves like the Shafter cow, swallowed by vast upheavels in our way of life quite early, somewhat.' And these kinds of changes, I think we all recognize these kinds of upheavels in this world are going on now at a rate magnitude of which is completely beyond our understanding--anything we thought possible. This of thinkers commenting in various ways on this. I noticed in his publication, said that we're living through the second big device in human history, comparable to the magnitude only to that first break in historic continuty from barbarism to civilization.

Nature and magnitude of changes are surprising, and here come a few of those statistics, that I mentioned to you. 25% of all the people who have ever lived are living now--that's an astonishing thing when you stop and think about it. Ninety per cent of all the scientists who have lived are living today. Half of all the energy consumed by man has been consumed in the last 100 years. And I was reading in a medical journal the other day that medical knowledge has advanced more in the last sixteen months than it has in all history. My own experience of late is when I was in high school--nuclear energy and automation--hadn't even heard these words. They weren't even part of our vocabulary at that time. So clearly technicological breakthroughs in the last twenty years have a tremendous effect on what's happening now and what's going to happen. Perhaps one of the most significant things though is the changing nature of the Earth in terms of the crush of population. This is what everyone's talking about. You're all familiar with the figures, even then they shake you when you look at them. From the beginning of time to 1850 we reached the population of a billion. We doubled this and got 2 billion in the next 75 years and we doubled again and we'll get 12 billion in the next 50 years--1975--if you're familiar with the geometric progression. One of the interesting things here I found the other day while I was doing a little reading in this area. Actually most of this doesn't have particularly much to do with the birth rate. The publication I was reading ascribed to DDT, penicillin, and soap, as the three most important things in recent history in increasing the population of the world. In Ceylon, for example, DDT alone was responsible for increasing the population by 83% in one decade. Corresponding decrease in per capita income--corresponding decrease in standards of people. Even when you think about this geometric progression and understand it, the topographers tell you that 600 years from now at out present rate of population growth, there'll be one person on every square foot on earth. It's surprising a little bit--you know it won't happen. Human beings and arithmetic are two entirely different things. We're going to reach that point. We're trying to figure out what we're going to do in the meantime. This adds a new dimension to the kinds of changes that are going on now. Of course, this would all be different if people were spread evenly across the earth, but being gregarious, individuals tend to gather and populate the places. One significance of this from the standpoint of change, I'd never thought about, reading an article in the area of urban ecology, talked about colonial times when we had a population of one per square mile. Inside a twenty mile diameter circle, because the figure 10 miles was about as far as anyone would walk to work, to the fields and back--about 334 people. The chance of contact was about 333 to 1; not too great. Chicago has a population density of 10,000 per square mile so in the same circle you have 200,000 people. Chances of human contact are 199,999 to 1 instead of 333 to 1. People come into contact with one another, new ideas develop, new problems develop, things change. You get more and more people coming into more and more close proximity with each other and things are changing faster.

Well, about now, I will imagine you'll be thinking what does all this have to do with budgeting; well, I'm not absolutely sure. Here are some of the things, I think they may mean that have some relevance to budgeting in a very broad sense. How do we use public money to do the things we want to do? Technology has reached a point where we can increase production at any level we wish by greater investment in production. Our problem is not to increase production, but to create the kind of society that can enjoy the new technological world we've created. Objectives of government and business are becoming much more closely related than ever before. This is a difficult proposition in a way because all related business has to do scarcity. It was always the rationing of scarce resources. Now we're faced in many areas with overabundance. This broadens our choices and alternatives. Making decisions about what we're going to do has become more difficult. Another area closely related, as far as creation and utilization of resources is concerned, is the truth. The central truth about the developed countries today is that they can have anything in the shortest run, the kind and scale of resources they decide to have. It's no longer resources that limit decisions. It's decisions that make the resources. This is the most fundamental revolutionary change mankind has ever know. I don't know what is the most significant change mankind's ever known but it certainly is a very significant one. Another one, and I talked about this briefly, is the availability of public money. We know that population and rate of economic growth will produce instrumental increases in public money beyond anything we could visualize before.

I mentioned an incremental $10-15,000,000,000 per year increase in Federal resources, and this is not withstanding Viet Nam or anything else; we can have small wars. I'm not sure we could have big ones. This makes the decision more difficult.

Certainly another significant one--we're seeing this more and more every day is the orientation of our society toward youth. Not only in numbers but in terms of attitude. I thought this was interesting when I saw this particular statistic--that by 1986, half the people in the world will be under 15 years old. And the children in China under ten are greater than the entire population of Russia. I'm not sure what these things mean, but they surely must mean something in terms of the kinds of changes that are going to be occuring in our attitudes. Certainly one of them is that now as our median age is going down more rapidly in the last years than it ever has before in our history. Now the majority of our people were born after the Depression of the '30's'. They were born by and large in a period of and their attitude toward spending government money, are tremendously different from those who were born, or who were raised or who's ideas were shaped during the Great Depression. Then the whole idea was never spend a dollar today because you may need it tomorrow or put it away for a rainy day--this sort of attitude. Governmental attitudes toward government spending are hanging in the balance now and they're moving over to an entirely different concept. People who are making the decision about them are different people--entirely differently conditioned.

Certainly another major area of significance is the confrontation that is occuring and is going to keep on between the haves and the have nots. Technological advances, abundance of global communications are obvious for all of us to see. And certainly this type of confrontation is going to have a tremendous impact on how we operate in this country and all over the world, we're saying here on the streets of Washington, Los Angeles, Chicago, and every place else, an education is certainly what we're interested in. H. G. Wells once said that human history more and more becomes a race between education and catastrophy. That was 30 years ago. Even though we recognize the truth in this statement, we appear to be struck to what we're going to do. I could quote John Wilkenson, who wrote "...Society" He said, "One information processing device that cannot easily accomodate itself to acceleration of change, is the human brain." Generals are always fighting the last war, educators are always instructing the last generation. The average college student is a very badly programmed computer. This is an interesting comment because I think of it in connection with BBS--this is a kind of change we're experiencing here and we find the kind of resistance that occurs.

So much for change, just as well not dwell on them too long, we might if we did include that it's hopeless that human beings just aren't constituted in a way that they can adjust to kinds of changes they're going to have to adjust to. I suppose that regardless of all these things, least those of government, we don't have any real option but to make the attempt. We can take refuge in the fact that no less a person George Bernard Shaw said, 'Government always makes the right decisions, but only after exhausting all other alternatives.' In PPB we're trying to think in terms of looking at the other alternatives before you've exhausted them and not arriving at the decision only because it's the only alternative left. In budgeting I'm not sure we've exhausted all the alternatives because we haven't really tried very many. As a matter of fact, most jurisdictions in this country prepare budgets in just about the same manner as they did in ancient Rome.

Let's take a brief look at what budgeting is, or at least what it ought to be. First of all, it ought to be a translation of program objectives into dollar terms. And a statement of the resources required to meet those objectives. Second, it ought to be a statement of major public policy--in a society of limited resources, we must make a choice--and the budget is the way we express these choices. Third, it should be an expression of the fiscal policy of the government--the total volume of income and expenditures. Some of this ought to be pretty elementary in terms of budget preparation and administration--I'll pass over it very quickly--they're some degrees of significance to a few of these items. You know the process divided into four parts, formulation by the executive, usually at least, authorization of the legislature, execution by the executive, and then accountability, which may be either an executive or legislative function. Actually, these distinctions are a little bit cloudy. Not so much because they aren't clear distinctions, but because there's a tendency between executive and the legislature to shift to one of these areas to the other as a means of getting off the hook with a difficult kind of decision. Legislatures will in a particular area, sort of back off; the executive authorizes this because it's a very unpopular decision and we simply don't want to make it. In the terms of execution, the legislative body may try to direct his administration of something to influence the way the executive executes. But by and large, these kinds of distinctions do hold up.

Actually, I suppose in this country we can date what we call modern budgetary practice back to the Federal Budget and Accounting Act of 1921, imposed certain kinds of criteria on the development and presentation of the budget and most of the states about that time sort of fell into line following the same kinds of practices. At that time up until 1950, all budgets were line item. Most of them still are. That is, they consist of a series of objects of expenditures, personnel supplies, equipment and so forth. They focus not on what government wishes to accomplish, but upon the goods and services it wishes to acquire. Line item budgets are heavily orientated toward expenditures control, are usually prepared and administred by accountants. Around 1950, a few more progressive jurisdictions started trying to build a better budgetary mouse trap and moved into what has been called performance budgets. Performance budgeting is orientated toward the cost of activities rather than objects. It leans heavily on work loading to see cost approaches. It still dwells on short term costs--involves analysis of total costs, but give less weight to control in the line item budget, which is usually prepared and administered by a person with some analytical skills. In both the line item budget and performance budget--and Oregon has had for 12-14 years a fairly sophisticated performance budget. In both the line item and the performance type operations, the budget development always starts at the bottom of the organization the lowest organizational unit develops what it considers its needs and this moves on up in the organization. That goes on and you finally get to the top and the total budget is quite the opposite of program budgeting. Late in the '50's some government started to move toward what has been termed programmed budgeting, although there's a great deal of confusion in the use of this term. Quite frequently it has been applied to budgets that were programmatic in format only. The budget was divided up into program divisions,but it was really a line item budget or perhaps a performance budget.

A true program budget depicts the total cost in both the short and long term of achieving predetermined programmed objectives. The budget is mission oriented. It's highest development leans heavily on the cost effectiveness analysis. Work load and unit cost are frequently employed, but only in terms of measuring dollar requirements--not in terms of analytical decision making. Budget planning starts at the top organization in the unit and proceeds downward rather than from the bottom up as in the case of the other approach. And usually programming budgeting requires persons with management and systems analysis types of skills. Many jurisdictions are trying to weld planning program and budgeting into a system which can aid decison makers in analyzing alternatives, establishing priorities, and deal with the objectives of governmental programs as a unified whole rather than uncoordinated segments. Here in our state, not much different from others, in reviewing the budgetary decisions the Governor's office followed two basic criteria, one relates to the end--how important is it to accomplish the magnitude of the service you want to perform, and the other relates to means, the work being carried out now? Sometimes, there has been too much of a tendency to look at the means rather than than the end. Examining whether this is really scope in magnitude of services you ought to be performing. Relating to levels of service, some kinds of guide lines are these: First, one of the questions that I should say we would apply to these decisions, what's the objective, and what are the alternative ways of achieving the objective. How was the existing level of service originally established, what are the relative priorities, what's the public policy tradition, and what's legislative dispositon toward the particular item because the politics of the situation are very real. At this point, a budget would be changed one way or another because they didn't fit our tradition or didn't fit the political realities of the present situation. In terms of these guide lines related to the efficiency of work done, we apply a great deal of analysis in the area of work clothes, in the area of standards, in the area of development of unit cost, in the area of management improvement, such as work simplification, technical improvments, etc. We will look at budgets in the terms of what overlapping may exist between related functions, duplication, etc.

Major problems in our budgeting effort, and I suppose in most other jurisdictions, is lack of definite program objectives. We don't really know what it is we're trying to make. Objectives were really activities, and what we were trying to achieve was pretty much what we had always been doing, what we had always been doing only let's try to do it better if we can. Lack of planning, lack of consideration of total cost in making budgetary decision, making only immediate costs for one budgetary period, lack of top management capabilities and that's still a problem and will be for quite a period of time. Lack of vigorous executive advocacy of programs. Acceptance of existing level, incremental budgeting; you don't ever look at what you're doing now, you only look at those little incremental increases that each year you add on top and finally achieve a double standard in expenditure of public funds. I'm sure most every state has some amount of money derived from certain kinds of revenue, usually called the general fund or some language of this kind. It's available for any agency that can obtain it. Then you have your dedicated funds--those moneys that can only be spent for specific purposes--where there is no competition. In other words, you say that highway taxes are available only to build highways, as an example of the non-competitive fund and the general fund and you get the standard that exists between two broad segments of state expenditures.

With that review we might talk about a fee problems that relate specifically to education at least as we see them in this particular state. By any measure, education is the most difficult function in which budgeting experts have to deal with. Among the problems encountered in Oregon as we attempt to bring a greater meaning to the process of budgeting for education are these: First of all, fragmented organization, traditional division of functions between state and local governments. Rigid segmentation: Two-year post high school, four-year post high school, graduate education, continuing education, etc. Further restrictions within each segment. For example, secondary schools, general education, special education, vocational education. We tried various coordinating kinds of mechanisms; they haven't worked by and large. This is a real problem to us, and this is one of the areas, in terms of bringing together related programs in terms of common objectives that PPB can be meaningful. It can be more meaningful in a state like Oregon that has a highly fragmented overstructure, than it might be in some other jurisdiction. Another factor is the inability to deal with education as a proposition resisting a notion as Professor Neal Chamberlain of Yale said, 'that a person can acquire in the first twenty or so years of his life, all the formal education he needs to keep him on an ascending career through the remaining forty years of his working life.' I think that the things that I talked about in terms of the kind of changes that are occuring throughout the world indicate a fallacy of this--that education is growing and must be a continuing process. But in this area we've made very little progress in sorting out the relative responsibilities of the various communities, non-educational, governmental agencies, business industries, and other elements of the private sector. Certainly, this isn't something that can be laid right at the door of organized education. It's something that involves the total of our society.

Another area, is the inability at least thus far, to develop the program structure for education that adequately depicts its functions. It can't properly relate educational programs to each other and other governmental operations unless we understand the nature of this structure. In higher education in Oregon for example, we have a program called IRRGS (instruction, related research, and general service). This program serves some 55,000 students, consists of hundreds of sub-programs, and is so broad as to be totally meaningless in terms of planning and budget. Of course there is lack of clear educational objectives. None of the efforts have been to try to develop objectives for all state programs. Incidentally, in that area I have been able to bring three booklets here--a working draft of our program and its objective for this state. In this attempt to develop objective in the area of education, our efforts just haven't worked out too well. They tend to be activity rather than objective orientated and are frequently so loaded with abstractions such as quality and excellence, that they're not susceptible to modification. When we want to improve the quality of education all you can say to that is that it's very interesting. But what does it mean?

Another problem area is lack of a relevant information system. Modern planning and budgeting is powered by information. Education produces vast quantitites of information, much of which is simply not relevant to a decision making problem. It's never been systematized in terms of what is the specific kind of data we have to have to make specific kinds of decisions. It's just a vast accumulation of garbage for years and years--we've always put these things together so we let each legislature ask for some more and every Governor ask for some more and it gets superimposed on the existing amounts. It's just not relevant to what we need.

Another problem area is the lack of relevant output indicators and valid measures of objectives of activities required. Worse than the lack of these things, is the presence of a number of superficial things which tend to give a plausibility to some rather implausible things. This in education, in higher education, is the student teacher ratio, which has a limited usefulness; but has been extended far beyond the limits of its utility in terms of using it as a decision making tool--expenditures for education.

A seventh area, a continuation of obsolete functions. This is certainly not to single out education. It occurs in many areas of government, usually manifested by a program gradually shifting its objective to areas where its continued existance can be justified. I can think in this state of two areas of higher education that qualify for this kind of description. One's continuing education in which the development of community colleges throughout the state has greatly changed the requirements and direction of continuing education. By its continued existance, continuing education has started to move into other areas. Such as sending teams around the state to conduct seminars on civil defense or move into other kinds of areas where it will somehow justify their continuation. Federal extension is notorious in this area, geared ages ago, to a rural economy which has since changed and is trying desperately now to move into programs for the disadvantaged, programs geared to urban communities as a means of continued existence even though it may be competing vigorously with a dozen established agencies in those areas where it operates.

Another problem area is inability or unwillingness to analyze alternatives and weight priorities. This occurs not only between education and other functions, but between segments of education. For example, this is one that bothers me, I hope that someday we can devote some real hard analysis to it. Oregon exports graduate professional students. We don't use them in this state to the degree that we could--we export them to other states. On the other hand, in terms of vocational and technical training, we just about hold our own, not very much better. Yet we spend proportionately a great deal more for graduate professional education than we spend for vocational-technical education. There are a number of implications--some broad and some narrow. What is Oregon's parochial self-interest as compared to making a contribution to the national good by producing educated people to send other places? What's the kind of social, economical climate we want to create in this state? What is the cost effectiveness, and marginal benefits from shifting resources either toward vocational-technical education or further toward graduate-professional education? We simply have not faced up for the need to do hard analysis and make hard decisions about these questions at this time. Not only in education but in other areas. But in education, particularly, and the example I gave is a pronounced problem."

Attention turned to planning strategies for implementation and "picking up the loose ends" which become apparent in a two-week Institute. Dr. Allen Lee, Director, Teaching Research Division, OSSHE, led the discussion and instructed on the topic, "Planning to Implement PPBS at Home." The basic instruction was on Program Review and Evaluation.

Techniques (PERT) as a technique for charting the tasks involved. The basic format included deatiling the activity, listing personnel assignments, estimating man days required, estimating beginning dates for each activity, actual beginning date, target completion date, and actual completion date. With much help on detailing the activities, participants were assigned the task of PERTING implementation tasks for their home situation. A sample of the PERT charts utilized follows on the next page.

PPBS PERT CHART*

For the State of: ______________________________

Activity	Personnel	Est. Man Days	Actual Man Days	Est. Begin. Date	Actual Begin. Date	Target Comp. Date	Actual Comp. Date

*This draft formulated by ______________________________, date: ______________________________

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Friday, August 30.

The first session was spent in individual and buzz group reports on the PERTING assignments given Thursday. These showed that quite thoughtful, detailed plans had been formulated by the Institute participants for PPBS activity on the home front. Dr. Lee answered several questions on the Perting technique. Dr. Lee also led a discussion on next steps needed in the PPBS movement, both at the federal and state levels.

The final major presentation was given by the Institute Director and was designed to pick up loose ends and reply to the several problems which the skeptics had raised during the Institute. His talk was entitled, "Skepticism and Limitations of PPBS."

Dr. McAbee introduced topic by stating that there is usually a need to assume an objective head on some of the issues involved in PPBS and provide answers for the skeptics. This is a common necessity in every new movement.

"One of the common types of skeptical views heard goes something like this. "It's the same old thing in a new package.' If this is your posture you are using the ploy as an excuse not to change anything. Or you may be ahead of the game and are already doing PPBS. Or perhaps you've already been able to fit all your preconceived prejudices into a new pattern. My reply to these viewpoints is this. PPB is really in the developmental stage and moving toward its maximum potential. There is every opportunity for you to shape, adapt, and improve it. In so doing, you will be making a general contribution as well as improving your competencies in your own job.

A second major skeptical question raises the question of lack of personnel to do the new job. This plaint is that doing the new thing is therefore impossible. Now, there is some truth to this posture, but in my opinion, it is greatly exaggerated. I believe the answer is to learn to use PPBS rather than whatever other system is in use. It takes a different know how, but will probably save work in the long run.

Another complaint about PPBS is that it tends to push major decision making higher in the organization and concentrates authority. This complaint probably stems from the use made of PPB by former Secretary of the DOD, Robert McNamara. One very realistic answer to this question is that, in my opinion, the trend is to move essential decision making upwards. This trend seems to develop when the amounts of money increase greatly and the programs become controversial for any reason. The locus of decision flows where the heat and the money are! Alright, why fight it; the big boys should earn their salaries anyway. Another personal opinion, born of some experience and reading in the field, is that the level of essential decision making will be concentrated or delegated according to the propensities of the higher echelon personnel.

Whether the management system is PPBS,"hit or miss," or traditionally organized, the top people can, will, and do decide where the decisions are made. The criticism is not relegated only to PPBS; it depends on how the system is used. I would be relatively certain that a good PPBS job will be accepted and thusly, lower echelon personnel will come to have more and more voice in decison making.

Another point of skepticism. 'Its all political anyway, why bother with all the work in PPBS.' I think this is a 'yeah, but---' kind of answer. I'm not ready to deprecate and discard a logical, factual basis for decision making. If one thinks the process is useless, then we'd better start looking for another form of government. I'm not ready to do that. I believe that most of you feel that we can positively influence the politicians who make the decisions. I, for one, believe we can make a more effective case for education with PPB systems.

Another skeptical point. 'PPB takes management and control out of budget making and operation.' There are always the three aspects of the process: planning, management, and control. PPBS emphasizes planning and evaluation to improve management and more accurately, its effectiveness. Control becomes program centered where it should be.

Another plaintive cry is, 'you can't program education.' I believe this one comes from those who know so little that they are afraid that PPBS turns the operation over to the computers.

It is difficult, but it is possible to systematize and program the management of the educational enterprise. Our critics will note the advance and applaud. We can specify our objectives and measure the results. At least, a start can be made; we can't get caught stating that it can't be done. As effort is expended we will refine our efforts and develop new techniques.

'It can't be cone in our situation' is another plaintive cry frequently heard as rationale for not doing anything new. I'm certain that PPB will not escape this charge. It is probably the oldes negative posture known to civilized man. Let us take a positive stand and state that the system needs much adaptation, but that we will make every effort to accomplish something with it.

Have you heard, 'We tried PPB and it didn't work' or 'It sounds good in theory, but won't work in practice'? I submit that the state of the art (PPBS) is such that it couldn't have had much of a trial in education to date. If the theory is sound, the practice will be good if we're not inept in its application. Of course, the rationale for the Institute was to learn enough theory and application to give PPBS a fair trial.

As in most every new movement, problems and implications will present themselves at some future time which cannot be forseen. These will lead to new opportunities for solutions and development.

A parting word. Your participation in this Institute has been most appreciated and worthwhile from my point of view. Thank you all very much for your wholehearted cooperation and substantial effort. The very best to each of you in your future endeavors!"

PART IV: INSTITUTE EVALUATION [1]

No single evaluation model will adequately suffice for the range of decisions that must be made during an on-going institute. A focus on student behaviors, on management decisions, or on broader educational needs requires that special questions be asked. Different foci require different bodies of information and varying modes of interpreting this information. What information to gather, what audience to serve, what language to use are all difficult pre-evaluation decisions.

The instruments designed and applied in this institute were addressed to four basic types of evaluation. Specifically, these were context evaluation, which serves to define the environment; input evaluation, which enables decisions on necessary outside assistance, appropriate strategies, and the design or procedure for the selected strategy; process evaluation, through which defects in procedural design or its implementation are either detected or predicted; and product evaluation, which attempts to determine the effectiveness of the institute. This last form of evaluation attempts to relate outcomes to the stated objectives.

Evaluation of this institute met an initial hurdle in the objectives, which were not stated in such a manner as to be readily operationalized. An effective and interpretable evaluation is dependent upon an hierarchy of objectives, stated in behavioral or operational terms. The objectives for this institute could have served adequately as goals or directives for the instructional and administrative staff but were difficult to interpret in an evaluative sense. For example, such terminology as "To acquaint", "To develop need". "To thoroughly orient," is virtually impossible to define against some overt, measurable criterion.

Use of a pre- and post-measurement technique was both valid and unique in evaluating an institute of this nature. (see Appendix A). As may be noted in attachment A, however, the statistics from this test were too inconclusive to be of any decision value. Lack of any significant differences in statistics calculated indicated that no further statistical tests were either implied or acceptable. The calculated gain score was .31, which also indicated that either the evaluation was poor or the instructional program was weak.[2] A more sophisticated and discriminating evaluation program is necessary to determine which element is liable to modification or revision. Despite the shortcomings of this instrument, there is little doubt about the value of this type of an evaluation effort and a valuable post-institute study would be the development of an instrument that would satisfactorily accomplish the intended evaluation outcome. This instrument could be used for future institutes of a similar nature.

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[1] Editor's note: Part IV was prepared by Dr. Frank Nelson, Assistant Research Professor, Evaluation Unit, Teaching Research Division OSSHE.

[2] The test was not designed to measure growth gains during the Institute, but only to focus attention on the overall task.

The participants in this institute were apparently a very diverse group, both in terms of background and academic abilities. Some pre-assessment of who they were and what experiences they had undergone would have been valuable. Due to the variance evident in experience and abilities, perhaps some type of common denominator should have been established for building the cohesiveness of the group. For example, persons with some background in PPB could have been used as small group leaders which would have provided direction for the small group study and developmental efforts, while concomitantly proficing these persons with an opportunity to add constructively to the institute as a whole.

It was also apparent from comments of the participants that a good many more examples of on-going PPB efforts would have been valuable. These may have been either existing programs, examples generated by participants, or models developed by the instructional staff. Unfortunately, in relation to precise interpretation, the polar counterpart of every statement was present.

Some concern was expressed for the lack of REAL flexibility in the institute schedule. While most of the participants were commendatory in their remarks about the sensitivity of the staff, there appeared to be several instances where consultants needed additional time. It also appeared that most of the participants would have welcomed a greater opportunity to prepare for the institute in advance. Mailing institute programs or agendas, reading lists, and other types of materials with which they needed to become familiar may have been a valuable strategy.

Generally, the following observations would seem appropriate:

1) There was a need for a programatic evaluation policy for monitoring and adjusting the institute emphasis to the pace and needs of the participants.

2) An apparent positive shift in attitude toward PPB was evident in the comments made by the participants.

3) Pre-instructional groundwork needs to be laid more carefully, i.e., pre-assessment of the participants.

4) This evaluation suggests that ALL critical elements of the institute be identified and weighed, each in relation to the others. The important elements, in terms of key constructs of the institute, are then identified and can be carefully considered in necessary decision making.

5) Greater budgetary allowances must be made for evaluation if a satisfactory third party evaluation is to be conducted. Additonally, the evaluation team must be involved in the total planning and implementation of the institute. Only then will such an evaluation be of any meaningful value. The evaluation program executed for this institute is incapable of determining either which aspects of the institute require modification or revision, or what behavioral changes were manifest in the participants.

ATTACHMENT A

Ind.	Pre	x_1	x_1^2	Post	x_2	x_2^2
A	4	-2.35	5.52	8	1.5	2.25
B	4	-2.35	5.52	7	-.5	.25
C	5	-1.35	1.82	6	-1.5	2.25
D	5	-1.35	1.82	6	-1.5	2.25
E	5	-1.35	1.82	4	-3.5	12.25
F	6	-.35	.12	9	2.5	6.25
G	6	-.35	.12	5	-2.5	6.25
H	6	-.35	.12	9	2.5	6.25
I	7	1.35	1.82	7	-.5	.25
J	8	2.35	5.52	9	2.5	6.25
K	8	2.35	5.52	8	1.5	2.25
L	9	3.35	11.22	10	3.5	12.25
M	9	3.35	11.22	10	3.5	12.25
N	9	3.35	11.22	7	3.5	12.25
Sum	89		63.38	105		72.50
x	6.35			7.5		
S		4.87				5.58
s^2		23.72				31.14
Xmdn		6.33				7.5

Gain score = $\frac{16}{140-89} = .31$

ATTACHMENT B

(1) Was the Institute staff responsive to the needs and problems of the participants? (Give one positive and one negative example)

Positive	Negative
Small group sessions - last problem.	Not enough content for 2 weeks - set faster pace.
Case studies were vocational education oriented.	Group sessions not well structured
Program was adjusted to meet the needs of the participants.	Program case studies could have been more relevant to vocational education.
Repeat material at different levels of consideration.	Not enough detail in ONE case study.
Staff was most cooperative.	
Many opportunities for questions, answers and discussion.	
In the cost effectiveness and cost benefit analysis applications.	Needed more direct application to vocational technical education by use of PPBS.
Flexibility in scheduling	Needed more case studies.
Orientation sessions well geared to entering knowledge of the participants.	
Good job of covering all levels of PPBS and skillful scheduling.	
Good (wide) range of resource people.	Two persons who dealt with out-of-state problems were of little value.
Generally satisfactory.	
Understanding and purpose of PPB was well covered and informative.	Some provision should have been made for those who had prior experience with PPBS - they caused some problems in requiring an abnormal amount of instructors time.
Questions from the participants were entertained at all times.	

(2) What activities were most productive for you and which experiences were least productive, e.g., large presentations, small training group work, panel work, individual study work, etc.

Productive	Non-productive
Small group - last problem.	Group reports were drags - poorly done - especially for educators.
Case study from Ohio.	Some of the general sessions.
Presentations on analysis.	Panel work.
Small training group.	Individual study work.
Problem solving in small groups.	Several of the large presentations were superflous.
Group work.	Some presentations could have been shorter without sacrificing content.
Small groups - especially in working out specific problems.	Individual study work - too many redundant references.
Case study - p.m. of the 27th; group work; some presentations.	Lack of annotations on the bibli-individual study work; some presentations.
Small training groups.	Panel work.
Small training groups, especially.	Large presentations (objectives).
Small groups.	Individual study groups.
Small groups.	Large presentations.
Small groups.	Large presentations (some, not all)

(3) In this Institute, we were concerned with giving information, providing for the planning of implementation for PPBS, and for the development of a set of guidelines for applying such a PPB system in your state. Would you have preferred more or less experiences in each of these areas?

Comments

(a) Giving information:

"I am well aware of the concept."

Question 3(a) continued:

Used an abnormal portion of time in identifying problems and continuous objective writing.

Lack of identifying those who had some background in the area.

Shorter period on general information and more on specific.

Need an hour on appropriate economic principles and definitions.

Vocational education presentations on the first day should have been delayed until second week.

Appeared adequate.

FElt that the general information provided was good.

Background information on the subject was available before we can go to the institute.

(b) Planning for implementation of PPBS:

Especially staff training.

Little time devoted to strategy for implementation.

"Since this is the first stage, and since most states won't be beyond this point for X time, perhaps the coordination of timing could have had more attention."

Maybe a whole day on this.

More group work on planning specific problems.

Practical situations/problems to work on.

Perhaps through small group work study groups this could be achieved.

More from the standpoint of a state director of vocational education.

(c) Development of guidelines for applying PPBS:

Group was able and ready to move faster.

Question 3(c) continued:

Need a program structure for vocational education.

More discussion of setting calendar and activity requirements.

"I suppose everyone would like a more specific guide on how to go home with A-B-C steps (probably not feasible)."

Planning and development would let us take home a plan for action on paper.

Enough given.

Maybe several forms could have been developed for some specific programs.

(4) Generally speaking were our instructional objectives relevant to your needs in the field?

Most relevant	Least relevant
Implementation of a PPBS system.	Political realities of the budget making process.
Sessions on analysis.	Session objectives.
What PPBS is and problem development.	Whay are your problems?
Planning for implementation.	
	Need case problems in vocational-technology.
All three.	
Processes.	
Small group activities applying PPBS skillls.	First day agenda.
Being a novice at PPBS most were favorable.	Out of state problems.
Understanding of PPBS and strengths of the system and how it can be of value.	Detailed study of cost, etc.

(5) What instructional objectives should be added to make the Institute more relevant?

Aware of sources of data on vocational education.

Pre-planning - information disseminated to participants, e.g. agenda, conditions.

Possible individual work.

Give participants a model implementation plan.

The generation of more case problems similar to one we attempted to analyze from the Ohio State Center.

"If we are interested in developing guidelines for implementation we would structure the learning experience to work with this aspect."

Development of more case studies.

Evaluate projected activities report in terms of PPBS.

Small groups should be better organized - objectives should be clearly stated for group sessions.

More realistic problems, consultants, and a computer.

(6) What effects do you think this Institute will have on the performance of your job next year?

Inspired to learn more about application of the system.

A better program budget will be developed.

Able to take further steps in the implementation of PPBS.

Be more alert to the establishment and review of objectives.

"Will make it more difficult. A staff in-service training program will be written and implemented."

Back-up data for our budget will contain more analyses and consideration of analyses.

Believe I will be able to make a more objective presentation of vocational education needs to budget people.

Tremendous improvement. Has increased my confidence to do my assigned job: get PPBS implemented.

Depends on progress of other agencies.

Greater understanding of the role of analysis in the process.

I am in a position to more intelligently pursue PPBS analysis in my own program. It is to be understood that supervision is still needed with additonal instruction.

More confidence - at least in terms of terminology.

As programs are suggested I'll be able to ask for information which will assist me in decison making. We'll use PPB to the extent possible with staff available.

Need not wait for next year - the job needs to be done immediately. I will review what I have not in draft form and revise it accordingly.

(7) Please give a positive and negative comment on each of the following Institute activities.

(a) Large group presentation:

Positive	Negative
Information not available in the literature was presented - i.e., persons experience.	Not necessary to identify problems - need to discuss solutions to problems.
Speakers well informed.	Need to use more effective presentation strategies
Interchange and dissemination of ideas and information.	Group too large and heterogeneous.
Competent speakers.	Discussion of personal experiences (only) is of limited value.
Some speakers, through their experience had much to share.	Appeared that speakers never had enough time.
	Too much pressure to maintain schedule many speakers had to quit when the discussion just got going. Some speakers did not have an orientation to the group and its interests.
Helped to bring resources of the group to bear on important points.	Too many people have to relate their total experiential background in the field.

Question 7(a) continued:

Gained much information.	Re-examination of materials presented.
	Speakers (some) wander too far from the material under consideration.
Some were very bad.	One or two presentations were excellent.

(b) Training group activities:

Positive	Negative
Ohio case problem very good.	Need help on reporting procedures-secretarial help, machines, better teaching materials (av).
	Not well structured enough.
	Case studies subject matter seemed to detract from objectives.
Excellent way to practice the process being learned.	Few members desired to force their point of view.
	Need more simulated activities whereby group works along with leader in large group before going into training group.
Well spaced through the list.	Needed time to produce presentation materials to increase yield and stimulate discussion.
Good opportunity to apply PPB skills which were presented.	
Grouping more flexible and beneficial.	In certain areas a group leader from the staff could have stimulated further discussion.
Enabled participation on specifics.	Could have used trained leaders.

Question 7(b) continued:

Excellent exchange of ideas.	Group sized should have been controlled better - participants should have been rotated to induce better exchange.
	Not enough time alloted.

(c) Panel discussion:

Positive	Negative
Differing view points valuable.	Repetitious.
Good reactions from members	
Exposure to diverse outside value judgments.	
Use of politicans and state personnel gave an excellent viewpoint on dealing with legislators and budget personnel.	
Followup needed.	Not enough time.
Stimulating, and helps to bring into focus what we have and have not learned.	
	Participants be given more time for prior preparation - schedule for a larger block of time.
Involved more people.	
Kept on subject.	Some panel members appeared to lack a depth of understanding of PPB.
Brought in a variety of ideas.	Panelists were not prepared in advance.
	Generally poor - seemed to be structured at the last moment.

(d) Small group activities:

Positive	Negative
Should have at least 5 - 6 persons in each group.	
Problems were to the point.	Objectives for each problem were not clearly stated.
Excellent means of developing ideas together.	
Good in most cases.	Too many changes in objectives of group assignment.
	Suggest that assignments be clearer and more specific.
	Foundering because of lack of specificity of assignment; not enough time to do an adequate job.
More individual effort resulted.	
Good mix.	
	Could have used trained leaders.

(e) Individual Study Time and Assignments:

Positive	Negative
Good take home reference material.	Poor reading facilities.
More material than could be digested but good to review at home.	
Reading time is necessary and was adequate.	
Ample time.	
Quantity of material fine.	Needed copies of some of the materials of the institute, i.e., HEW handbook and taxonomy.
	Suggest a closer relationship with class discussions.

Question 7(e) continued:

Found some interesting reading.

About the right amount.

Good handout.

Selection for quality recommended less emphasis on the volume.

There was a super-abundance of this.

Ohio case problem should have been reviewed.

Not enough time to learn information covered.

Readings - too repetive.

(8) Was the Institute flexible enough to allow for a change in an activity if the need arose?

Yes 12

No 0

(9) How would you evaluate the Institute management?

	Very Satisfactory	Average	Very Unsatisfactory
Housing	9	3	
Meals	10	2	
Institute time use	8	5	
Free time	9	3	
Provision for recreation	4	3	2

(10) If there are any additional comments you may have regarding the improvement of similar institutes, please indicate these below.

Improve questionnaire.

Bring family - live in dorm.

Time to dicuss own PPBS developed.

Shorter if possible.

Question 10 continued:

Mail out more information agenda in advance.

Use best of Maryland material; hand out samples of Minnesota and other PPBS data sheets; first multiple choice test was poor instrument.

More case studies; develop outline for typical vocational education problem.

More coordination with similar programs conducted previously.

More attention to time - attention to PPBS.

APPENDIX A: PROGRAM

OREGON INSTITUTE FOR

PLANNING, PROGRAMMING, AND BUDGETING SYSTEMS

August 19-30, 1968

MAJOR OBJECTIVE

To Enhance the General Quality of
Planning, Programming, and Budgeting
Systems in Vocational Education at
State Levels

Sponsored by
Teaching Research Division
Oregon State System of Higher Education
Monmouth, Oregon 97361

Under the auspices of a
Grant from the United
States Commissioner of
Education Authorized by
The Bureau of Research
Under Section 4(c) of
The Vocational Education
Act of 1963

PPBS Institute Objectives

The Oregon Planning, Programming, and Budgeting System Institute is focused toward state level problems in the administration of vocational-technical education. Specific objectives follow:

1) To acquaint participants with educational and financial problems.

2) To develop need for a systematic, information data system as a basis for improved decision making.

3) To thoroughly orient participants in the structure and theory of Planning, Programming, Budgeting Systems.

4) To define data streams in vocational education necessary for use in the PPB system.

5) To introduce methods of analyses utilized in the PPB system.

6) To develop a guide or model for implementation purposes in state divisions of vocational-technical education.

7) To define problems of implementation and solutions as developed by practitioners in the field.

8) To difine areas needing further research and development in application of PPBS to vocational education.

9) To orient participants to the political processes involved in budgetary processes.

THE OREGON PPBS INSTITUTE PROGRAM

Monday, August 19

9:00 A.M. Welcome to Oregon College of Education
Mr. Kersh

Welcome to Oregon
Mr. Loomis

Overview of Institute
Mr. Lee

9:30 Research in Educational Decision Making
Dean Goldhammer

Coffee break and mixer

11:00 Problems in State Level Management of Vocational-Technical Education
Mr. Stanley

12:00-1:30 Lunch

1:30 State and Federal Finance Problems in Vocational-Technical Education
Mr. Stanley

Coffee break

Panel Discussion on Issues Presented
Mssrs. Stanley, Lee, Worthington,
Swenson, Ulrich, Ringo

4:00 Institute Administration
Mr. McAbee

Tuesday, August 20

8:30 A.M. The Need for PPBS at the State Level
Mr. Cogan

9:45 What is PPBS?
Mr. Neuenswander

10:45 What is PPBS?
Mr. Neuenswander

12:00-1:30	Lunch	
1:30	Questions and Answers on the PPBS Structure	Mr. Neuenswander
3:00	Clarity Philosophy, Goals, and Objectives	Mr. Gage
	Questions and Discussion	
4:15	Institute Administration	Mr. Mahoney

Wednesday, August 21

8:30 A.M.	Group Session: Defining Criteria and Quantifying Objectives	Mr. Gage
10:30	Reports and Discussions on the Group Sessions	Mr. Gage
12:00-1:30	Lunch	
1:30	Developing the Program Memoranda, Terms and Definitions	Mr. McAbee
3:00	Group Session: Defining Data Needs in PPBS and Developing the Program Memoranda	Mr. McAbee
4:15	Institute Administration	Mr. McAbee

Thursday, August 22

8:30 A.M.	Status and Need of PPBS in Vocational Education: State of the Art	Mr. Legg
9:45	Reports on Group Sessions: The Program Memoranda and Data Needs	
11:00	Individual Work on a PM Outline and Defining Data Needs for particular states	
12:00-1:30	Lunch	

1:30	Economic Concepts Underlying PPBS Questions and Answers	Mr. Freithaler
3:30	Statistical Concepts Helpful in PPBS Questions and Answers	Mr. Freithaler
4:15	Institute Administration	

Friday, August 23

8:30 A.M.	Introduction to Cost Benefit Analyses Questions and Answers	Mr. Freithaler
10:30	Introduction to Cost Effectiveness Analyses Questions and Answers	Mr. Freithaler
12:00-1:30	Lunch	
1:30	Group Sessions: Potentials for Research and Development in PPBS Data Needs	
3:00	Reports from Groups and Discussion on Potential for Research and Development in PPBS	Mr. McAbee
3:30	Review of PPBS Structure	Mr. McAbee
4:30	Institute Administration	

Monday, August 26

8:30 A.M.	Planning Cost Analysis of Training Programs	Mr. McAbee
10:30	Group Sessions: Outline a Procedure for Cost Analysis of an Existing Program	
12:00-1:30	Lunch	
1:30	Reports and Discussion from Study Session	

3:00	Budget Cycles, Formats, and Crosswalks Mr. McAbee
4:15	Institute Administration

Tuesday, August 27

8:30 A.M.	Discussion of Case Study: Cost Benefit Analysis of Job Corps and Implications for State Level Vocational Education Mr. McAbee
10:30	Group Session: Generating Alternative Programs
12:00-1:30	Lunch
1:30	Reports and Discussions of Group Sessions
3:00	Case Study: Cost Benefit and Cost Effectiveness Analysis-Development of HEW Disease Control Case
4:15	Institute Administration

Wednesday, August 28

8:30 A.M.	Levels and Types of Analyses Questions and Answers Mr. DeLong
10:30	Role of the Budget Examiner and Analyzing Needs Questions and Answers Mr. DeLong
12:00-1:30	Lunch
1:30	Problems in Implementation: PPBS in the Washington State Division of Vocational Education Mr. Moe
3:00	Panel Discussion: Experiences in States Active in PPBS and organizing Available Resources for Implementing PPBS Mr. Moe, Chairman
4:15	Institute Administration

Thursday, August 29

8:30 A.M.	Political Realities of the Budget Making Process Mr. Rothwell
9:30	The Legislator Looks at Educational Requests Senator Newbry
10:30	Panel: Improving Communication: A dialogue between Professionals, Legislators, and the Laity Mssrs. Rothwell, Lee, Newbry Hoyt, Powell
12:00-1:30	Lunch
1:30	Governor's Office Looks at PPBS and Education Requests Mr. Penwell
3:00	Group Sessons: Planning to Implement PPBS at Home Mr. Lee
5:00	Institute Administration

Friday, August 30

8:30 A.M.	Skepticism and Limitations of PPBS (Class Discussion) Mr. McAbee
9:45	Reports and Recommendations on Implementation, and Discussion Mr. Lee
10:45	PERTING the PPBS Task Mr. Lee and Selected Participants
12:00-1:30	Lunch
1:00-2:00	Institute Evaluation Mr. Martin
2:00	Departure

Institute Speakers and Consultants

Arnold Cogan
State Planning Coordinator
Office of the Governor
State Capitol Building
Salem, Oregon

James V. DeLong, Analyst
Program Evaluation Staff
Bureau of the Budget (Federal)
Washington, D. C.

William O. Freithaler, Professor
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Gerald E. Gage, Associate Research Professor
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Keith Goldhammer, Dean
School of Education
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Corvallis, Oregon

C. Richard Hoyt, Senator
Benton County
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Bert Y. Kersh, Dean of Faculty
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Harold (Hal) V. McAbee
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Cleigh Penwell, Budget Director
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Shirley Prather, Institute Secretary
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Al Ringo, Director
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Angus Rothwell, Executive Secretary
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Cecil E. Stanley, Director
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William R. Swenson, Assistant State Director
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Walter E. Ulrich, Jr., Administrator
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Trenton, New Jersey

Otto Legg, Assistant Director
Program Planning Division
Bureau of Vocational-Technical Education
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APPENDIX B

Oregon PPBS Institute Participants

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APPENDIX C

OREGON PPBS INSTITUTE
AVAILABLE REFERENCES

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*Operation PEP, San Mateo County Board of Education, 1870 El Camino Real, Burlingame, California, 94010.

APPENDIX D

OREGON PPBS INSTITUTE

August 19-30, 1968

Reading Assignments

August 18: Please complete the pre-test and hand in Monday morning.

Examine the program.

Other materials in your kit.

Planning-Programming-Budgeting Hearing; U. S. Congress Administrative Bulletin.

What is a PPB System?

Available References, Oregon PPBS Institute.

August 19: The Planning-Programming-Budgeting System: Progress and Potential; pp 1-10, 46-48.

The Concept of a Program Budget.

August 20: Bulletin 68-9, Executive Office of the President, BOB, pp 1-11, PPBS Budgeting System.

Progress and Potentials; pp 86-127

What's Ahead for Vocational Education, No. 4, USOE.

August 21: Complete the readings in PPBS: Progress and Potentials.

Program Budgeting and Other Newer Management Tools in Higher Education.

Cost Effectiveness: An Introduction and Overview.

August 22: Using Cost-Benefit Analysis in Planning and Evaluating Vocational Education.

Supplemental: Measuring Benefits of Government Investments.

Office of Economic Opportunity Paper on Evaluation.

August 23: Review Assignments for August 22.

Concepts and Philosophy of a PPB System.

Bulletin No. 68-9 - Attachment B.

Cost Analysis for PPB Cost-Benefit Studies.

August 26: Benefit-Cost Estimates for Job Corps.

PPBS: Progress and Potentials, pp, 182-191.

August 27: Systems Analysis Techniques for PPB.

Disease Control Programs.

What's Ahead For Vocational Education?

August 28: The Politics of the Budgetary Process.

PPBS: Progress and Potentials, pp, 191-225.

August 29: PPBS: Progress and Potentials, pp, 225-235.

PPBS: Rationale, Language, and Idea Relationships.

APPENDIX E

CRITERIA FOR FEASIBILITY OF OCCUPATIONAL PROGRAMS

Introduction. These Criteria represent premises or standards on which judgments concerning the feasibility of continuing or implementing occupational curricula may be based.

1) Objectives. The objectives of the occupational curriculum under consideration will be specified. The sources for the objectives should be given. Consistency of the curriculum objectives with long range goals and philosophy of the institution should be shown.

2) Manpower Requirement Needs. The need for trained manpower resulting from the occupational training program must be shown. Definite manpower needs must be shown at either the local, state, regional, or national levels. This listing also constitutes an order of priority.

3) Program Costs. These shall be specified in terms of cost per trainee and recognized as being reasonable. Data shall include both financial (out-of-pocket) and real resource (total economic) costs. A cost effectiveness study will be presented. Cost benefit studies will be made if possible.

4) Financing. Adequate and realistic funding shall be available. Both actual and potential sources of financing should be reported. These include local, state, and federal sources of funding. Local sources include tax income, fees, and tuition. Income from other private sources should also be included when appropriate.

5) Student Availability. Data showing student interest and availability on a would enroll basis shall be given. These data should be listed on a local, state, and regional basis. Evidence of potential students' capabilities of completing the program should be assessed.

6) Governing Board and Advisory Committee Approval. New programs should have approval of the local governing board(s) and advisory committee(s), and the Oregon State Advisory Council for Vocational Education. If expenditures of state or federal funds are involved, new programs must have approval from the Advisory Council and the State Board of Education.

7) The Occupational Education Curriculum. A curriculum outline shall be furnished. It should be brief but detailed enough to show the following:

a) How the curriculum will achieve the stated objectives.

b) Course outlines showing organization for recycling the curriculum.

c) Congruency with Dictionary of Occupational Titles.

d) Various entry and exit levels.

e) Plans to fill class vacancies as they occur.

f) Suitability for the target population.

g) Organization for individually paced instruction.

h) Plan for evaluation of trainee progress.

i) Plan for evaluation of the curriculum.

j) Availability of related educational experiences.

8) Consideration of Alternatives. These considerations should include:

a) Other curricula which could conceivably meet the stated objectives.

b) Other curricula which could meet different objectives.

c) Other institutional basis for the program.

d) Effect of not offering the program.

9) Instructor Availability. A qualified teacher should be available. If not, assess the potential for recruiting the needed instructional assistance.

10) Potential for Development. This criterion should be examined on the basis of short and long term needs. Effect of long term, growth potential should be examined with respect to manpower requirements, costs, student availability, available financing, and curriculum expansion.

APPENDIX F

A BENEFIT-COST PROBLEM

by Dr. Joseph McGidney and Mr. William Nelson
Ohio State Universtiy

I. The Situation

The construction of a new educational facility is being considered by the board of education and the local school administrators in conjunction with the state education department. As a member of state education department, you are asked to develop a benefit-cost study comparing the expected benefits and costs of constructing a two-year vocational school versus an academic junior college.

The local school system has three vocational school and seven junior colleges at the present time. Data given in Tables 1 and 2 have been derived from the best estimates of future construction and operating costs and from historical data on employment and salary levels of graduates from the present school system. The cost figures for the junior college are based on an annual graduating class of one hundred. Costs of the vocational school are based on an annual graduating class of fifty.

Discount rates and present value of future earnings are given in Tables 3 and 4.

II. The Assumptions

1) Costs given in Tables 1 and 2 are the summation of all costs of the two-year program for a graduating class. Initial building and equipment costs have been amortized to an annual basis.

2) Benefits given in Tables 1 and 2 are assumed to be the average annual earnings per graduate. Initially, assume the effect of education has a ten year life.

3) Annual salaries of nongraduates were derived from the earnings of high school graduates.

III. The Analysis

Step A. What are the benefit-cost ratios and the optimum economic decision using:

1) An interest rate of 0.00

2) An interest rate of 0.05

3) An interest rate of 0.10

Step B. Would the results be different if net present value were used as the criteria for evaluation? Why?

Step C. What, if any, are the critical factors in your analysis? What would be the effect of changing those factors?

Step D. What further information would be necessary to make a definite recommendation in a real situation?

IV. Discussion of Analysis

Steps A and B.

	Junior College	Vocational School
Benefit-Cost Ratios		
0.00	2.400	2.100
0.05	1.712	1.629
0.10	1.262	1.306
Net Present Value		
0.00	$1,4000,000	$550,000
0.05	712,000	314,500
0.10	261,500	152,8000

Step C.

Critical Factors	Effect
1) Annual Salaries	
2) Future Costs	
3) Interest Rates	
4) Size and Number of Schools	
5) Cause-Effect Relationship between Education and Income	
6) Direction of Economic Growth in the Area	
7) Noneducational Investment Alternatives	

Step C. (continued)

Critical Factors	Effect
8) Social, Cultural, and political Aspects	
9) Ability and Interest of Students	
10) Migration of Graduates	
11) Local, State or National Analysis	
12) Effect of Graduates Upon the Wage Levels	
13) Specific Occupational and Academic Programs in Schools	
14) Future Level of Unemployment	

Step D. Additional Information

1) Specific Location of Schools
2) Direction of Economic Growth
3) Manpower Projections (Labor Market)
4) Student Population Projections
5)
6)

General Comments

1) Net present value and benefit-cost ratios do not necessarily lead to the same conclusion.

2) Changing the interest rate can change the relative position of investment alternatives.

3) There are a very large number of implicit assumptions in any benefit-cost analysis.

4) Benefit-cost analysis is only one of many criteria for program evaluation.

TABLE 1. ESTIMATES OF THE COSTS AND BENEFITS OF THE PROPOSED JUNIOR COLLEGE

	Years										
	0	1	2	3	4	5	6	7	8	9	10
Benefits											
Annual Salary per Graduate		$4,000	$5,000	$6,000	$6,000	$7,000	$8,000	$9,000	$10,000	$10,000	$10,000
Annual Salary per Nongraduate		4,000	4,000	4,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000
Net Benefit per graduate			1,000	2,000	1,000	2,000	3,000	3,000	4,000	4,000	4,000
Costs											
Fixed:											
Building	50,000										
Equipment	25,000										
Miscellaneous	25,000										
Total	100,000										
Operating:											
Administration	25,000										
Instruction	87,500										
Equipment	12,500										
Depreciation	12,500										
Miscellaneous	12,500										
Total	150,000										
Foregone Earnings of Students	750,000										
Total Costs	1,000,000										

TABLE 2. ESTIMATES OF THE COSTS AND BENEFITS OF THE PROPOSED VOCATIONAL SCHOOL

	Years										
	0	1	2	3	4	5	6	7	8	9	10
Output											
Annual Salary per Graduate		$6,000	$6,000	$7,000	$7,000	$7,000	$7,000	$8,000	$8,000	$8,000	$8,000
Annual Salaries of Nongraduates		4,000	4,000	4,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000
Net Benefits per Graduate		2,000	2,000	3,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Inputs											
Fixed:											
Building	25,000										
Equipment	25,000										
Miscellaneous	6,250										
Total	56,250										
Operating:											
Administration	12,500										
Instruction	31,250										
Equipment	12,500										
Depreciation	6,250										
Miscellaneous	6,250										
Total	68,750										
Foregone Earnings of Students	375,000										
Total Costs	500,000										

TABLE 3. FUTURE EARNINGS DISCOUNTED AT FIVE PERCENT

Time	Discount	Present Value of Annual Salaries Discounted at Five Percent									
Years	Rate $(1 + .05)^n$	$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000	$10,000
0	1.00	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
1	1.05	952	1,904	2,856	3,808	4,762	5,714	6,666	7,619	8,571	9,524
2	1.10	909	1,818	2,727	3,636	4,545	5,454	6,364	7,273	8,182	9,091
3	1.16	862	1,724	2,586	3,448	4,310	5,172	6,034	6,896	7,759	8,621
4	1.22	820	1,640	2,460	3,280	4,098	4,918	5,738	6,557	7,377	8,197
5	1.28	781	1,562	2,343	3,124	3,906	4,688	5,469	6,250	7,031	7,812
6	1.34	746	1,492	2,238	2,984	3,731	4,478	5,224	5,970	6,714	7,463
7	1.41	709	1,418	2,127	2,836	3,546	4,255	4,964	5,674	6,383	7,092
8	1.48	676	1,352	2,028	2,704	3,378	4,054	4,730	5,405	6,081	6,757
9	1.55	645	1,290	1,935	2,580	3,226	3,871	4,516	5,161	5,806	6,452
10	1.63	614	1,228	1,842	2,456	3,067	3,601	4,294	4,908	5,521	6,135
20	2.65	377	754	1,131	1,508	1,887	2,264	2,642	3,019	3,396	3,774
40	7.06	142	284	426	568	608	850	992	1,133	1,275	1,416

TABLE 4. FUTURE EARNINGS DISCOUNTED AT TEN PERCENT

Time Years	Discount Rate $(1.10)^n$	Present Value of Annual Salaries Discounted at Ten Percent									
		$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000	$10,000
0	1.00	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
1	1.10	909	1,818	2,727	3,636	4,545	5,454	6,363	7,272	8,181	9,090
2	1.21	826	1,652	2,478	3,304	4,130	4,956	5,782	6,608	7,434	8,260
3	1.33	752	1,504	2,256	3,008	3,760	4,512	5,264	6,016	6,763	7,520
4	1.46	685	1,370	2,055	2,740	3,425	4,110	4,795	5,480	6,165	6,850
5	1.61	621	1,242	1,863	2,484	3,106	3,726	4,347	4,968	5,589	6,210
6	1.77	563	1,130	1,695	2,260	2,825	3,390	3,955	4,520	5,085	5,650
7	1.95	513	1,026	1,539	2,052	2,565	3,077	3,591	4,104	3,617	5,130
8	2.14	467	934	1,401	1,868	2,335	2,804	3,271	3,736	4,203	4,670
9	2.35	426	852	1,278	1,704	2,130	2,553	2,982	3,404	3,834	4,260
10	2.58	388	776	1,164	1,552	1,940	2,326	2,716	3,104	3,492	3,880
20	6,81	144	288	432	576	735	882	1,029	1,176	1,323	1,470
40	46.22	22	44	66	88	110	132	154	176	198	220

APPENDIX G

PROGRAM EVALUATION CHECKLIST

The following list of questions has been assembled for the use both of consumers and producers of key documents in the Planning-Programming-Budgeting System. It focuses mainly on the analyses to be reflected in the Program Memoranda (PM) although some points relate to the Program and Financial Plans (PFP).

I. OBJECTIVES

Perhaps the most difficult and important task of analysis of programs in the public sector is being clear on objectives and the contribution of specific programs to specific objectives.

1) What assertions are made about overall national objectives? What authority is quoted? The President? The Congress? The Agency Head? How specific and concrete is the statement of objectives? To what extent is the Government committed to these objectives? What form does the commitment take? Presidential statements? Statutes? Agreement with Congressional committees? Moral obligations? How much room for interpretation is there? For example, is it clear over what time period the objectives should be met? Does the PM translate general, abstract, vague objectives into operationally meaningful ones?

2) Is it clear what should be the Federal Government's responsibility for the cited or proposed objectives? Has the alternative of greater contribution by State and local agencies or the private sec been considered? Should it be a Federal responsiblility at all?

3) Is the relationship between broad national goals and specific agency goals clearly stated? Is it reasonable? What policies, legislation and statements of fact are implicit in the objectives? Should they be made explicit? Are they right?

4) Are the agency goals stated in terms which have operational meaning? Have they been expressed quantitatively? Is there a time table for accomplishment?

5) Has the relationship among related goals in different parts of the same agency or in different agencies been made explicit (e.g., the War on Poverty)? Does the analysis adequately take into account other efforts to accomplish these goals -- efforts by other agencies of the Federal Government, by State or local governments, or by the private sector? Is the impact of the agency's programs on the goals of other agencies noted?

6) Have the agency's priorities among objectives and programs been made clear? If more, or fewer, funds are available than in the

basic case assumed by the agency, is it evident what the agency would propose to add or delete from its programs?

7) What is the evidence that the alleged "need" for goods and services exists in the sense that people would be willing to pay for the service? Given this evidence, does the analysis show that the agency's proposed scale of operation is best? Or has the agency proposed fulfillment of all potential "need" for the service by employing an implicit price level of zero? On the other hand, has it stopped short of fulfilling demand willing to meet the proper price? Why? Was a budget constraint the reason for this? Can a better budget justification be made if this is the case (perhaps as the result of further study)?

II. MEASURES OF EFFECTIVENESS

The private sector (and certain business-like governmental activities) have profits which serve as a guide to performance; most governmental agencies have to develop their own specific indicators of performance. This is often difficult to do well and errors of various kinds are frequent.

1) To what extent are the tangible, measurable outputs of the program used by the agency adequate indicators of the extent to which the overall purposes of the program are being achieved? If inadequate, what better measures of performance might be used?

2) Are there clearly identified criteria offered by which to judge program performance? How adequate do they seem to be? Are there some alternative criteria that should be considered?

3) Have outputs been quantified to the extent useful? Where quantitative measures of program performance are missing are there logical, convincing qualitative assessments? Has the agency gone too far and attempted to quantify the unquantifiable? Is it clear where dependence on the quantitative outputs leaves off and judgment takes over?

4) Are there close substitutes for these outputs which will affect the demand for them? Are these substitutes considered in the analysis?

III. FINANCIAL DATA

Whereas it is often very difficult to define and obtain good measures of program effectiveness, the cost side is usually easier to cope with. And often a better understanding of costs can be very useful in improving program performance.

1) Does the PM present the costs that are relevant to the issues analyzed? Have systems costs estimates been developed and presented? How complete and how accurate are these estimates? Have any valuable inputs been ignored? Are all directly related support, training and construction costs included? What additional cost analytic efforts are suggested by the quality of the agency's cost data?

2) Does the analysis describe the bases for the cost estimates? Do the estimates look reasonable?

3) Have sunk costs -- sacrifices -- been omitted as they should be, except where there are significant salvage values? Have they been considered where they should be i.e. in the evaluation of the past program?

4) In systems with multiple products, have only the nonavoidable costs been charged to a given program, or have common costs been arbitrarily allocated? What is the purpose of the allocations? Have popular programs been saddled with part of the burden of less attractive programs? That is, have costs been shifted from where they should properly be charged to where they can most easily be funded? Have costs been shifted from products with easily measured output to products with only qualitative outputs? For example, in a multipurpose dam project, are costs overallocated to recreation and underallocated to irrigation or power products?

5) Is the agency too optimistic in its assumptions on funds likely to be available for its programs? What effect should more modest assumptions have on the conclusions?

6) Is there available a record of successive agency cost estimates over time of new programs? What does this suggest about the accuracy of current claims? Why shouldn't the agency be asked to have available a record of its estimates?

7) Is there a sensitivity analysis to show the effect of uncertainty in cost estimates on conclusions? What evidence is adduced in support of its cost estimates?

8) Have future benefits and costs been discounted? For example, if a proposed project is compared with existing ones for which future savings are expected, are those future savings discounted? On the other hand, is the case for discounting future outlays and benefits negated by the existence of a brief time span for the project, or by uncertainties?

9) Is the chosen discount rate reasonable, i.e., does it reflect alternative uses of investible funds? How sensitive are conclusions on preferred programs to the choice of discount rates?

IV. SOME ADDITIONAL POINTS

Treatment of Alternatives

1) How thoroughly have alternative methods for accomplishing the same objectives been analyzed? Are there alternatives involving different tactics or techniques, different modes of production (more or less capital intensive), different priorities, different mixes of Federal vs. State and local expenditures, different financing methods, different legislative requirements? Were different levels for the agency's preferred program studied? Are mixtures of systems considered among the alternatives?

2) Have the costs and effectiveness of the major alternatives been properly assessed? Have tradeoffs been made between present and proposed programs? Were the criteria, costing methods and time span the same as for the proposed program, i.e., was the comparison fair?

3) Has adequate account been taken of the need to examine programs at the margin? Quite often the issue is not whether to have a program at all, but whether to make marginal changes in the program level or composition. Does the analysis deal with specific issues in terms of the marginal benefits and marginal costs? Does the data displayed show the effect of marginal changes or current marginal operations?

4) Has the presentation of program data in terms of arithmetic averages concealed important information about the spread in values? If an analysis supports certain conclusions about a program based on these averages, might there nevertheless be important exceptions? What are they? Should they be examined?

5) Are the alternatives analyzed real options for the agency head? Does he really have a choice? On the other hand, is there inability or unwillingness to consider radically different programs?

6) Have the constraints on the program area been explicitly treated? What are they? Have ways of modifying the constraints been explored? What reasons have been given for rejecting alternative objectives or programs? Efficiency? Statutory prohibitions? Organizational limitations? Lack of trained personnel? Lack of capital? Inadequate technology?

Models

1) Is there presented a model or simplified, quantitative description of some important aspects of the program? If this hasn't been attempted for a broad program area, has it been attempted for some important parts? Has the analyst failed to structure the important relationships explicitly? How adequately does the model seem to explain observed phenomena? Does it rest on structural relationships or is it based entirely on statistical correlation, i.e., is a theory offered? Does it seem palusible?

2) Can you suggest specific improvements on the model? What factors should be included that have been left out?

3) Has the analyst engaged in excessive modelism, i.e., does his work reflect more interest in the model than in the real world? Has he focused on manipulating a computational method at the expense of dealing with important factors in a sensible way?

4) Are there severe suboptimizations? Have elements that should be regarded as variables by the agency head or the President been allowed to vary, or are there restrictions imposed in the process of dividing the analysis into lower level problems?

Treatment of the Future

1) Has the proper span of years been considered? Does the PFP or the PM go too far, or not far enough, into the future? Beyond the immediate period, is there simply a mechanical projection of recent trends which fails to take adequate account of possible changes in policy, technology, costs, or availability of funds?

2) Has an explicit, time phased, decision strategy been presented which allows for options being opened up and foreclosed, research being done, experiments being carried out, and data gathered? Alternatively, is the program area characterized by a collection of unstructured *ad hoc* programs and decisions without a coherent theory? If the latter, what should be done to improve the situation?

3) Does the PM show a range of possible *future options* as to program objectives and means of achieving these objectives? Does it show over what period of time in the future it should become possible to choose among these options? Does it show what evidence should dictate a choice among options?

4) Is the proposed program level shown dependent on how well the program performs over the next year or two? Is there any discussion of the evidence that should dictate cutting off the program entirely or redirecting it drastically?

5) Have economic, demographic, cultural trends been explicitly taken into account? How adequately?

Uncertainty

Program uncertainty can be of various kinds: e.g., there can be uncertainity because of a lack of clarity in objectives, risk (statistical uncertainty), new technology, factors external to the program (e.g., the future level of economic activity), inadequate bases for estimating costs, and inadequate bases for estimating consumer demand.

1) Have the adequacies and inadequacies of data on major issues been discussed? Where data are inadequate, does the PM state what action will be taken to improve the situation?

2) Aside from data problems, are there important underlying uncertainties about program effectiveness or costs? Is there important technological uncertainty? Does the PM state what additional analysis or research is being undertaken to reduce these uncertainties?

3) Have sensitivity tests been carried out to determine how the uncertainties affect program recommendations? (e.g., Has a "break even" analysis been amde which shows what the value of an uncertain parameter would have to be in order to get equivalence among alternative programs?

V. GENERAL

1) Have the programs covered in the PM been described clearly, concisely, and quantitatively?

2) Are critical assumptions, relationships and facts spelled out? In any program area, a few factors usually are much more important than the rest. Does the analysis identify and focus on these critical factors? Or does it handle the important ones by assumption and concentrate on less important ones?

3) Have the most important data on a program area been presented or are key assertions made without supporting data? Should the agency be asked to prepare and forward additional data prior to the Fall budget review?

4) Has the program "base" been analyzed or has the analysis been limited largely or entirely to new programs?

5) Have the recommendations presented on a program area been compared with earlier agency recommendations on the same subject? Have data on actual program performance been compared with earlier agency claims for the program?

6) Is the recommended program composition and level based on an overall analysis of (a) need or effective demand; (b) an arbitrary rule of thumb (e.g. x percent more than last year's level); (c) Presidential commitment; (d) an estimate of the level that the Congress will accept; (e) other considerations?

7) Where the analysis is inadequate or incomplete, does the PM indicate what future work is planned to improve it; the date to be gathered, criteria to be applied, method of analysis to be used?

APPENDIX H

OREGON PPBS INSTITUTE
Inventory Instrument

Section I

Instructions: This instrument is designed to assess your present knowledge of the PPB system. In each group of three items you are to rank the items in the terms of most correct (1) to least correct (3). For example, in the following a one has been placed by the first item as it is the most correct of the three statements. The second item is least correct, thus a three is placed by it. The last item would be given a two.

Example: (1) The "Scarlet Letter" was written by Nathaniel Hawthorne.
(3) Thomas Jefferson was the fifth President of the United States.
(2) The Southwestern Section of the United States is a nice place to live.

1. ( ) Reorganization of state level vocational education administration is not needed.
( ) PPB in operation, tends to decentralize decision making.
( ) Most vocational education programs are administered under the umbrella of a single agency in most states.

2. ( ) One of the important aspects of PPBS is cost projection into future years.
( ) The only real financial problem in vocational education is lack of sufficient funds.
( ) PPBS is another way of presenting the traditional budget requests and is not worth the extra effort involved.

3. ( ) Several well organized information systems are tested and available to state level vocational education decision makers.
( ) Planning, Programming, and Budgeting Systems (PPBS) is a statistically based, systems, and computer approach which takes human error out of decision making.
( ) The PPB system will provide definite information relative to available alternatives for adequate decision making.

4. ( ) There are a few problems concerning allocation of scarce monies to a variety of vocational education needs.
( ) Implementing new systems of budgeting (PPBS hopefully) will engender many of the same problems as other changes.
( ) Program categories should coincide with classification of budget inputs.

5. ( ) The most important reason for utilizing PPBS is to maximize program benefits for the dollar expended.
( ) PPBS is basically a method to save money.
( ) A statement of objectives in the PPB system should be made in behavioral terms.

6. ( ) PPBS means Politics, Priorities, and Budget Systems.
( ) There are few materials and resource persons to assist educators willing to implement PPBS.
( ) There are sufficient data existing which indicate clearly which vocational programs are the most valuable.

7. ( ) It is satisfactory to interchange philosophy, goals, and objectives in application of the PPB system of budget information.
( ) The best administrative arrangement for PPBS specialists is staff relationship to the budget director.
( ) PPBS, as applied to education endeavors, needs much research and development for full realization of its potential.

8. ( ) It is not necessary to use cost utility analyses in PPBS.
( ) Education is a human affair and the systems analysis people should stay out of it.
( ) PPBS stimulated program development with its emphasis on alternatives.

9. ( ) There are well defined guides available for implementing PPBS at state and local levels.
( ) There is still much room for value judgments in application of PPB systems.
( ) Analyses in PPBS should begin with the resources assigned to a program.

10. ( ) Program benefits and costs cannot be separated in analyses in PPBS.
( ) PPBS is such a logical system that the decisions can be made without reference to politics.
( ) A decision maker is only interested in the program which is most economical per unit of output.

Section II

Please respond to the following questions:

1. What value does PPBS hold for vocational education? Why?

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2. List two of the most important aspects about the PPB system as you now understand it.

(1) ____

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(2) ____

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PPBS INSTITUTE QUESTIONNAIRE

(1) Was the Institute staff responsive to the needs and problems of the participants? (Give one positive and one negative example)

Positive: ____

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Negative: ____

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(2) What activities were most productive for you and which experiences were least productive, e.g., large presentations, small training group work, panel work, individual study work, etc.

Most productive ____

____

Least productive ____

____

(3) In this Institute, we were concerned with giving information providing for the planning of implementation for PPBS, and for development of a set of guidelines for applying such a PPB system in your state. Would you have preferred more or less experience in each of these areas?

(a) Giving information: More Less

Comments: ____

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____

(b) Planning for implementation of PPBS: More Less

Comments: ____

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____

(c) Development of guidelines for applying PPBS: More Less

Comments: ____

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(4) Generally speaking, were our instructional objectives relevant to your needs in the field?

Yes No

Most relevant: ____

Least relevant: _______________________________________

(5) What instructional objectives should be added to make the Institute more relevant?

Comments: ____

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(6) What effects do you think this Institute will have on the performance of your job next year?

Comments: ____

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(7) Please give a positive and negative comment on each of the following Institute activities.

(a) Large group presentations:

Positive Comment: ___________________________________

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Negative Comment: ___________________________________

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(b) Training group activities:

Positive Comment: ___________________________________

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Negative Comment: ______________________________

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(c) Panel discussions:

Positive Comment: ______________________________

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Negative Comment: ______________________________

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(d) Small group activities:

Positive Comment: ______________________________

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Negative Comment: ______________________________

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(e) Individual study time and assignments:

Positive Comment: ______________________________

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Negative Comment: ______________________________

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(8) Was the Institute flexible enough to allow for a change in an activity if the need arose?

Comments: ______________________________

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(9) How would you evaluate the Institute management?

	Very Satisfactory	Very Unsatisfactory
(a) Housing	______________	______________
(b) Meals	______________	______________
(c) Institute time use	______________	______________

(d) Free time for informal visiting and exchange of ideas ____________________________

(e) Provision for recreational activity ____________________________

(10) If there are any additional comments you may have regarding the improvement of similar institutes, please indicate these below.

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